

A C C S

See Page 15



"THE TIMES" OF THE TRANSPORT WORLD

THE
ROLE
OF THE
TRAVEL
AGENT

See Page 2

VOL. LXXXIII No. 2155

[Registered at the G.P.O.
as a newspaper]

LONDON, SEPTEMBER 3, 1960

PRICE ONE SHILLING

Transport of Coal

LOOKING ahead to possible winter difficulties, the continued shortage of men in key grades in certain areas of British Railways has been the subject of talks between officials of the British Transport Commission and the National Coal Board, in order to ensure that there is no interruption to the flow of industrial and domestic coal during the coming winter. The Coal Board has produced careful estimates of its output (including disposal of stocks) in the various divisions over the next few months, and the British Transport Commission is examining these to see how best the traffic can be handled, if necessary by diversion to routes not normally used. A realistic view is being taken of the situation, and if it is considered necessary, movements by road will be arranged to augment the efforts of the railways. It is being borne in mind by both parties that the peak output of coal takes place when railway operating conditions are at their worst, due to bad weather. By planning these operations in advance, it is hoped to avoid the extemporised diversions which were necessary last spring, but in the meantime both the Board and the Commission have asked for the co-operation of the consumers in taking delivery of all the coal they can between now and December. Coal merchants have been parties to the discussions, and have promised their co-operation in building up stocks and distributing the maximum amount of coal before the end of the year. This is, of course, an example of where central planning continues to play an important part in the organisation of national transport. The success with which coal transport was carried out during the war and thereafter will be recalled and there is little doubt that B.T.C. headquarters can repeat the performance if it is required. It is true that conditions have changed, apart from the chronic staff shortage in some areas which has brought matters to a head. The capacity of routes has been temporarily reduced in some cases while engineering work is carried out for the modernisation programme, but that is still just the kind of problem of flexibility which was encountered and overcome in earlier years.

Ultimate Double-Decker?

WHAT is probably the ultimate capacity in a double-deck bus within the present maximum dimensions of 30 ft. by 8 ft. has been achieved by the Birmingham and Midland Motor Omnibus Co., Limited, in its new D10 design, the prototype of which is now being tested by the company. As we recorded in our issue dated November 15, 1958, the D10 is unique among British double-deckers for having its diesel engine mounted under the floor, by which means a total capacity of 80 seated passengers and ample platform area are achieved, though in the prototype the seating capacity is limited to 78 to enable a nearly straight staircase and greater luggage space to be provided. In common with other recent B.M.M.O. designs, the D10 is of integral construction in the form developed for the successful S14 single-decker, of which over 250 are in service and a further 100 building, and used subsequently for the D9 double-decker now in service and large-scale production. Also following recent B.M.M.O. practice, the new design embodies rubber suspension, independent at the front, and disc brakes, though, as in the D9, their use is confined to the front axle of the prototype, drum brakes having been fitted at the rear. Other principal features of the D10 include an extensive use of plastics panelling inside and outside, power-assisted steering and semi-automatic transmission employing Self-Changing Gears fluid-friction clutch and oil operated epicyclic gearbox. Not yet convinced that a front entrance is right for Midland "Red" double-deck operation (the production D9 has a rear platform), the company has, nevertheless, built the prototype D10 with double jack-knife doors forward of the front axle, but the design has been made flexible so that door openings can be either at the front or the back, or both if required. An illustrated description of the D10 will appear in an early issue.

CURRENT TOPICS

Transport Union and Unofficial Strikes

WITH its vast membership, embracing many trades and industries, the Transport and General Workers' Union is one of the chief sufferers from the repercussions of unofficial strikes; its report for 1959 not surprisingly contains a warning on the subject. "Withdrawal of labour," it states, "should be the last resort in the pursuit of legitimate claims. Some disputes arise out of legitimate grievances, and are deliberately allowed to develop by bad management, but at all times regard should

truck. The scheme has cost over £160,000 and is another step forward in the London Midland Region's £5 million "Speed the Freight" plan, which is intended to give fast and reliable freight and parcels services.

Trans-Canada Highway

IN British Columbia the Trans-Canada Highway includes a long section on gravel alongside the Columbia River round the Big Bend between Golden and Revelstoke. This is now being replaced by a

Edmonton. The present Atlantic Region with headquarters at Moncton will remain substantially the same.

Meeting Modern Requirements

THE C.N.R. reorganisation follows two years of intensive study of railway operations and administration and is felt to reflect the far-reaching changes which have taken place in both transport market and the technology of transport since the basic organisation of the railway was established. On the marketing side, the growth in facilities offered by pipelines, road transport, airlines and ships underlines the need for new sales techniques, and greater flexibility in meeting the demands of competition. At the same time, great physical changes have been made including dieselisation with all its resulting effects such as greater train lengths, faster schedules and better utilisation of locomotives; central traffic control, being introduced progressively across the system; improved equipment design and maintenance; modern freight yards and electronic data processing. In the light of such changes, the reorganisation is designed to achieve a faster and more effective response to varying local needs in today's highly competitive business conditions.

Increasing Industrial Research

GRANT-AIDED research associations, which last year reached a total number of 50, are obviously keeping pace with the increasing research effort in industry generally. Total income from industry and government rose from £5.1 million in 1955 to £7.3 million in 1959, of which the Department of Scientific and Industrial Research contributed £1.7 million last year. The Industrial Grants Committee of the D.S.I.R. Council expects it to go on rising, according to its latest report, *Research For Industry 1959* (published for D.S.I.R. by H.M.S.O. price 8s. (\$1.44 U.S.A.), by post 8s. 7d.). Basic, applied and sponsored research, development, information and advice are benefiting from this expansion, although each research association is designing its own pattern of advance to meet the changing needs of individual industries. Attention is drawn to three important areas of research—creep, metal fatigue and shipbuilding—in which D.S.I.R. is co-operating with one or more of the research associations. Summaries of the work now being carried out on creep and fatigue research are included in the report, while of shipbuilding the committee says: "It is clearly important that the accumulated resources of all three research organisations (British Shipbuilding Research Association, Parsons and Marine Engineering Turbine Research and Development Association and Ship Division of the N.P.L.) should be used to the full in the future technological development of the shipbuilding and allied industries."

Opportunities for the Future

EXTENSION of work on safety and health, such as the problem of air pollution in several industries, is urged. The report includes a special article by Dr. J. Thomson, director of the British Scientific Instrument Research Association, on the progress of research on instrumentation and automatic control in industry. The author points out that in this field, more than any other, the various research associations have made a successful contribution to productivity alongside that of individual industrial firms. There can be no doubt whatever that the proper use of industrial instruments and control systems offers great opportunities for the future. In a country like Britain, where the value of exports in relation to imports largely determines the standard of living, instrumentation and automatic control must be used to the full. Gradually more machines and processes will be made automatic—but "men will always be required to carry out the imaginative thinking to produce the machine and its control system." The flash of insight to connect two phenomena and the imaginative concept which begins as a dream and ends as a reality on the drawing board are beyond the machine and always will be. They are true scientific thought.

LEADING FEATURES IN THIS ISSUE

Portrait	PAGE		PAGE
Rear-Admiral Sir Matthew Slattery, C.B., D.Sc., F.R.Ae.S., R.N. (Retd.)	9	Portuguese Railways in 1959	12
Special Articles			
The Role of the Travel Agent	2	Modern Airways Section	
Brecon-Railway Crossroads—I: A Place in Transport History. By C. R. Clinker	3	Features of Farnborough: New Aircraft, Engines and Equipment	13
Three New Seammells: Articulators and Rigid Eight-Wheeler	5	Regular Features	
Swedish Commercial Vehicles: Volvo Production At Göteborg (cont.)	7	B.T.C. Traffic Receipts	16
Coach Heating and Ventilating: New System Proposed by Clayton Dewandre	10	Commercial Aviation	9
Bedford Light Pickup: Versatile Newcomer	10	Forthcoming Events	9
Present State of Railway Electrification: 2—Historical Development. By F. J. G. Haut	11	Financial Results	16
		Important Contracts	16
		Letters to the Editor	9
		Lorry, Bus and Coach News	4
		News from All Quarters	8
		News Summary	2
		Shipping and Shipbuilding	16
		Social and Personal	15

be had to the fact that the prerogative of calling disputes rests with the general executive council, and the extreme step should only be taken when it can serve a useful purpose and not involve us in blunders and errors of judgment." The union had continued its customary practice of seeking to act in a sensible and reasonable way in dealing with applications for improved wages and conditions. But, the report adds, "with the great productive capacities which exist in industry today the idea that we should exercise unrelated wage restraint is out of the question." The union's wages policy was based on the principle that if Government actions resulted in a lowering of the standard of living they would do their utmost to remedy the situation but would continue to try to overcome difficulties by negotiation. The report records that membership at the year-end (1,278,310) was about 12,000 more than the previous year but 18,000 less than at the end of 1957. The union's income last year amounted to well over £3 million and its total funds reached nearly £12 million.

Oldham Railway Parcels Scheme

WORK on the reconstruction and re-equipment of British Railways Oldham Clegg Street goods depot, now complete, has involved the erection of a new shed for parcels traffic, 400 ft. by 198 ft., together with a new office and amenities block for the staff. By creating a number of main parcels depots, of which Clegg Street is the first one, the London Midland Region plans eventually to remove the handling of parcels traffic from passenger stations in the Greater Manchester Area to specialised central depots. Now that the work is completed, direct collection and delivery can be made of parcels traffic within an area which will include Greenfield, Ashton, Middleton, Rochdale, Radcliffe, Denton, Stalybridge, Hollinwood, Heywood, Bury and Shaw and Crompton, and the expanded handling facilities at Clegg Street will simplify the processing of the large amount of mail order business which originates in the Oldham district. The mechanical equipment within the depot consists of four articulated tractors and 18 trailers, and an elevating platform

sealed surface road on a direct route parallel to the Canadian Pacific Railway between the two towns, saving 10 miles on the journey. More than 1,000 men are working double shifts on the task and special precautions are being taken against avalanches which are an especial risk in the Glacier National Park and which compelled the C.P.R. to tunnel for protection. There were 161 avalanches in the Rogers Pass area last year and the new road will be protected by snowsheds, embankments, cone-shaped piles of earth and, for production of controlled avalanches, by mortar fire from 15 permanent gun emplacements directed at the points where slides can build up. It is expected that the new section of highway will be usable all but 12 days each winter.

Decentralisation on Canadian National

RECENTLY the directors of Canadian National Railways approved a plan to revise the structure of the system with the aim of decentralising authority and modernising administrative techniques. To increase effectiveness in serving the transport market, Mr. Donald Gordon, chairman and president, said it was planned to replace the present departmental type of management structure by integrating the sales and operations functions at all levels of the administration. The present organisation in Canada, with three regions, ten districts and 31 division, will be reconstituted into five regions which in turn will be divided into 18 "business units" with jurisdiction over all rail transport activities in assigned geographic areas. The new organisation will thus eliminate one level of supervision and localise the administration by setting up area administrations in which authority for both sales and operations will be combined. The present Central Region, which includes nearly all of Ontario and Quebec, will be divided into two regions—the St. Lawrence Region, with headquarters at Montreal, and the Great Lakes Region, with headquarters at Toronto. Similarly the present Western Region, which includes the entire territory west from the Lakehead to the Pacific Ocean, will be divided into two regions—the Prairie Region, with headquarters at Winnipeg, and the Mountain Region, with headquarters at



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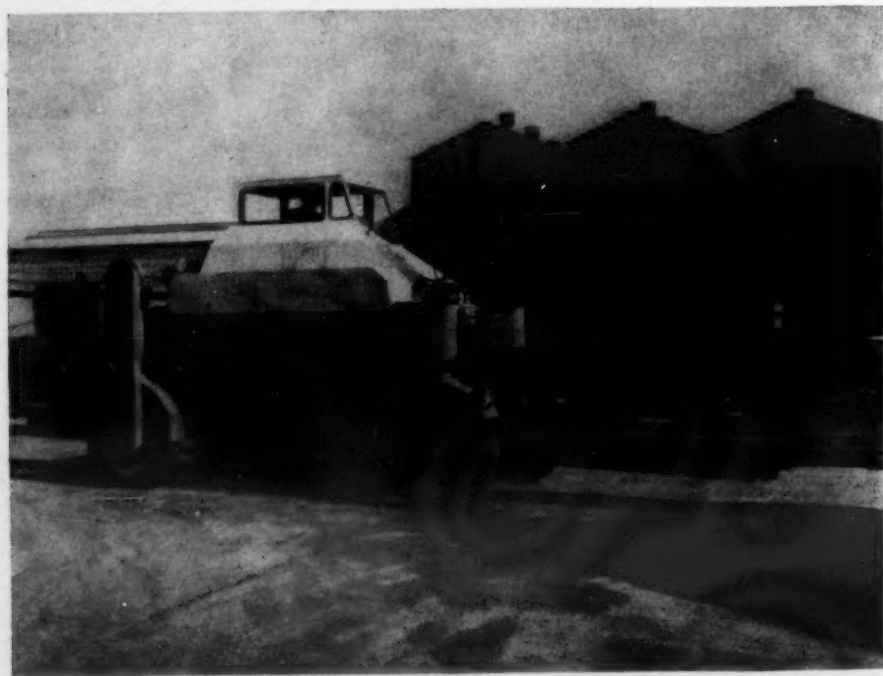
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ANNUAL SUBSCRIPTIONS
BRITISH ISLES, 47/6; CANADA, 45/-;
ELSEWHERE ABROAD, 47/6
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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

The Role of the Travel Agent

IN its annual report, which was summarised in our last issue, British European Airways referred to the continued support which it was receiving from its travel agents and to the contribution made towards its increased traffic by the introduction of reduced fares to agents for the construction of inclusive tours. There was, in fact, an overall increase of 46 per cent in the number of inclusive tours passengers carried and the policy during the current year of offering lower fares not only to those participating in such tours, but also to the ordinary travellers should reap a very satisfactory reward. There will never be unanimity on the form that holidays should take and that is assuredly as it should be. There will be those who like to have the whole thing arranged for them so that all they need to do is to dispose themselves comfortably and allow events to take their course. Equally there are those to whom half the joy of a holiday is the working out of various plans, their weighing up and, after due and solemn consideration, the final decision as to what should be done. The travel agent can represent an important factor in all this and particularly when it is an inclusive tour that is involved. Such facilities have existed for many years and embraced the use of surface transport facilities long before aviation was involved. There can, however, be no doubt that ability to transport holidaymakers much farther afield in less time, so giving them longer to spend at their destination has combined with increased ability to spend money on holidays to cause a very substantial rise in the demand for inclusive tours in all their forms.

Need for Improvement

WITH such expansion there has come a substantial growth in the number of agencies to deal with the traffic and whereas, before the 1939-45 war, there were many quite sizeable towns without agencies capable of handling anything beyond motor coach bookings, nowadays the number of establishments specialising in travel is legion. It has, indeed, been suggested in some quarters that there are too many and that the activities of the less efficient ones are calculated to bring the whole industry into disrepute. The view has also been expressed that operators are benefiting by reason of the number of erstwhile agency customers now preferring to make direct bookings. There have been too many stories of muddled or uncompleted tours appearing in the national and provincial Press for the industry to be

able to shrug its shoulders and maintain that all is well. It is, however, a difficult matter to put forward methods of remedying this state of affairs. Many find repugnant any thought of a closed shop with the laying down of a code of conduct by an association of which membership would be compulsory and our contemporary the *Travel Trade Gazette* indicates in its correspondence columns almost every week the strong feelings of both supporters and opponents of the Association of British Travel Agents, and that is not the only body representing agents by any manner of means.

Greater Efficiency Needed

SOME things can be done to improve the situation. With no intention of implying universal criticism it should be said that too many agencies have staff members of limited efficiency. To conduct such a business properly is not cheap and we have no intention of embarking upon a discussion as to whether or not higher commissions should be paid. It cannot, however, be stressed too highly that accuracy and a wide knowledge of travel are essential if business is to be sustained, let alone built up, and if the transport operator is to be given merited support. It is ludicrous that with the simplifications that have been achieved in the layout of coach tickets and air tickets, to cite but two instances, there should still be so many travellers put to grave inconvenience by reason of mistakes made in issuing their tickets. There have been occasions when our own journeys have only been accomplished as desired by reason of ticketing errors having been noted and pointed out well in advance and it is without vanity that we suggest that a fairly large proportion of the travelling public would have accepted a ticket bearing a fictitious flight without a qualm. It is true that rectification of the error should follow receipt by the operator of the booking confirmation, but that process is not always a rapid one—a handicap for which agents cannot always be blamed although some operators can—and this again places accuracy at a premium. Knowledge of facilities cannot be gained all at once but it is as important as the maintenance of accuracy.

Making Things Plain

IN recent years a great deal has been done to foster the interest of agency staffs by providing opportunities for them, rather than their principals who have probably come to view such occasions with a certain cynicism, to sample the facilities for themselves and this must enhance the knowledge which they possess. Such opportunities cannot, however, come to everybody and all possible steps should be taken to encourage juniors to study the subject in all its aspects and particularly geography. As we said in a leading article of July 23, those connected with transport require a sense of public service and this is as important in a travel agency as in the actual sphere of operating. That feeling must, moreover, permeate the organisation from top to bottom and be apparent to the customers. Whether the facility provided has been cut to the minimum cost or whether it is of a more ambitious nature, it must be organised effectively from start to finish. More care should be taken by some concerns to make clear what patrons can expect and there have, unfortunately, been instances of descriptions of accommodation which have by no means been fulfilled. Here also the situation is not easy. Many of the travellers could accurately be described as innocents abroad and they are apt to expect the same experiences as those of friends who went the previous year regardless of the fact that they may be patronising a markedly cheaper tour. Most agencies do not, however, concern themselves only with inclusive tours and, where regular facilities are concerned, there can be little excuse for inefficiency. It is disheartening to say the least to walk into an agency and find on the counter timetable leaflets which are out-of-date. True the operator may have failed to supply the new ones but he should be badgered until he does, while the fact that he is losing publicity and possibly traffic as a result of the scrapping of the old material could well spur him to greater effort. The attraction of custom is a difficult one in most trades and in none more so than that of travel. Retaining that custom can be equally hard and there is room for an improvement if that goal is to be attained.

NEWS SUMMARY

MORE than 80 per cent of the passengers who flew the North Atlantic in the second quarter of the year travelled economy class. The total number at 478,751 represented an increase of 26.8 per cent on the 1959 figure. Freight increased by 38 per cent and mail by 15 per cent.

Vauxhall Motors, Limited, has introduced a new Bedford light pick-up vehicle suitable for a wide variety of purposes (page 10).

The British Transport Commission rejected on August 30 a claim by the railway unions for

reductions from 44 to 40 and 42 to 38 in the weekly hours of manual and clerical workers respectively. It is thought that the unions will now take the matter to the Railway Staff National Council.

Despite consolidation of the aircraft industry there will be more exhibitors than ever at the S.B.A.C. flying display and exhibition at Farnborough (page 7).

Features of the new Scammell Lorries range which is to be shown at Earls Court are the Routeman rigid four-axle chassis, the Handyman two-axle tractor with matched bogies semi-trailer and the Trunker three-axle tractor and matched bogie trailer (page 5).

BRECON—RAILWAY CROSSROADS—I

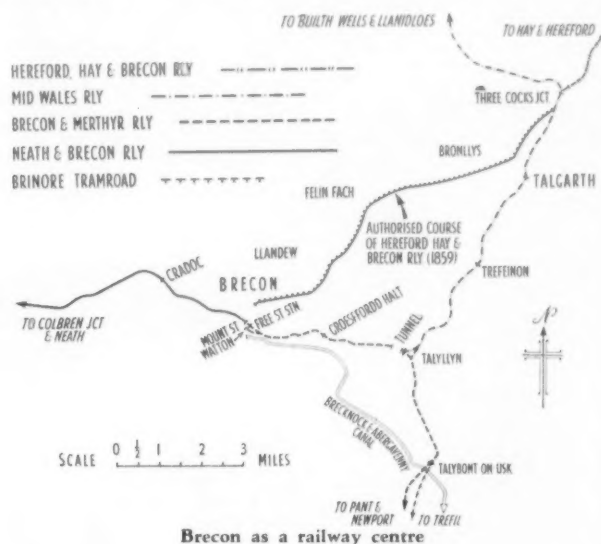
A Place in Transport History

By C. R. CLINKER, President, Railway and Canal Historical Society

BRECON, lying astride the River Usk some 30 miles south-west of Hereford and 14 miles due north of Merthyr Tydfil, could hardly have failed to become a gateway to South-West and West Wales. Indeed, its early and stormy history is closely bound up with the strategic position it occupied at a natural confluence of roads forced by surrounding high ground

1880, when the two railways were amalgamated. The canal, instigated and mainly promoted by the colliery owners and ironmasters of Monmouth and Glamorgan to benefit the district and increase distribution of their products, was only a first step. Within three months a meeting was held at the Shire Hall, Brecon, to canvass support for a connecting canal to Hay and Whitney, there to

Brecon is typical of many railway centres which were viable in Victorian days because of through traffic. Today traffic has thinned and is below an economic level. Can rationalisation and dieselisation save the railway facilities to such remote places or must they be abandoned? These articles show how they developed and the part they played in local economy.



to cross the river hereabouts. In the past, prosperity of the town has derived from its standing as a market and agricultural centre and as a posting station on the London—Milford road. To this was added its status as a county town since Brecknockshire was formed in 1536. There have been no manufacturers of importance and for this reason its population has only risen from about 5,000 in 1801 to an estimated 6,370 today.

Like a number of smaller country towns, Brecon's influence on and interest in industry and transport was considerable. For these projects, substantial amounts of capital were found in and around the town, in particular by the shrewd banking family of Wilkins (Brecon Bank) whose

join the River Wye. Though £47,000 was immediately subscribed, the scheme fell through. When revived in 1805, the idea was in the form of a horse-worked tramroad to Hay. This had no immediate result, but later it formed the basis of the Hay Railway. Again there was a pause of five years during which, it may be assumed, the tramroad scheme was discussed and canvassed in the district.

The Hay Railway

Finally, the decision to construct a railway was taken on July 26, 1810, at a meeting held in Hay. A public gathering at the Golden Lion Hotel, Brecon, on January 18, 1811, was enthusiastically



Brecon Free Street passenger station looking towards Neath

advances buttressed many a coal adventurer, canal and railway promoter. The individual wealth thus acquired was, naturally, reflected locally in several ways and engendered business and prosperity which might otherwise have been absent from a non-industrial community.

The Canal

Apart from roads, Brecon's first role in the field of transport was as a canal-head, or distribution point. Substantial support was given to the promo-

in favour of the project; £31,000 was subscribed on the spot and £7,700 more promised. The Act incorporating the Hay Railway Company received Royal Assent on May 25, 1811; it was the 12th statutory railway company. The original proprietors numbered 107 (eleven of them women), and included virtually everyone of consequence in the district. Landowners were represented by the Duke of Beaufort, Viscount Hereford (chairman of the company for 28 years), Earl of Ashburnham, Earl of Oxford and Mortimer—with eight members



Talybont-on-Usk: Haverton Hill to Dowlais train of empty tank wagons waiting to ascend Seven Mile Bank

tion of the Brecknock and Abergavenny Canal Company which secured its Act of incorporation on March 28, 1793. This 33-mile navigation, from a junction with the Monmouthshire Canal at Pontymoyle, near Pontypool, was opened into Brecon on Christmas Eve, 1800, giving the town direct communication with the rich mineral areas of Monmouth and Glamorgan. Coal, hitherto carried only short distances north of the coalfield, could now be distributed over a wide area of the northern parts of Brecknock, Radnor and West Herefordshire. Southbound loadings consisted of agricultural produce. Later, a good trade in flour and malt between Kingston, Merthyr and South Wales was built up. The canal was purchased by the Monmouthshire Railway and Canal Company on September 29, 1865, and became Great Western Railway property on August 1,

of his family—and Tomkyns Dew; coalowners and ironmasters by Sir Charles Morgan, Edward Frere, Samuel Homfray and George Overton; and banking interests by five members of the Wilkins family. Nearly all these were also canal proprietors. The line commenced at Watton Wharf, on the north bank of the canal at Brecon. This is now partly covered by garages facing the entrance to the present British Railways goods yard. Thence the route to Hay was substantially that of the existing railway as far as Clifford, beyond which a slightly different route was followed. It was opened between Brecon and Hay on May 7, 1816, and extended by stages to Eardisley (24 miles), reached on December 1, 1818. An extension to Kingston was constructed by a separate company, the Kingston Railway. This was opened on May 1, (Continued on page 6)

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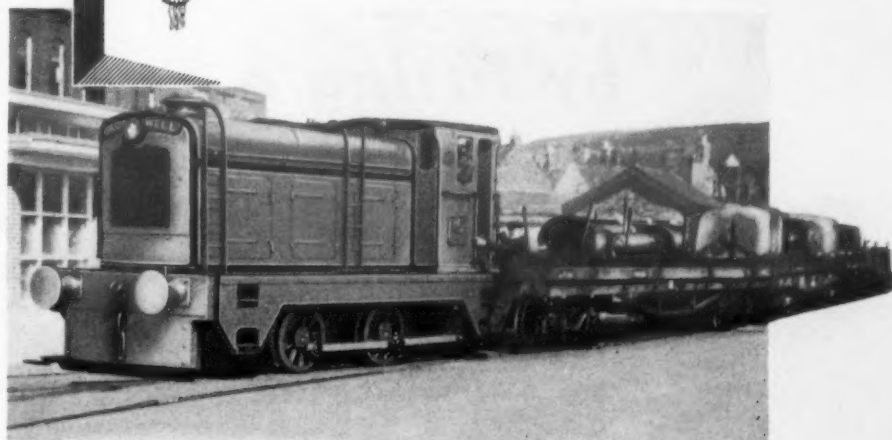


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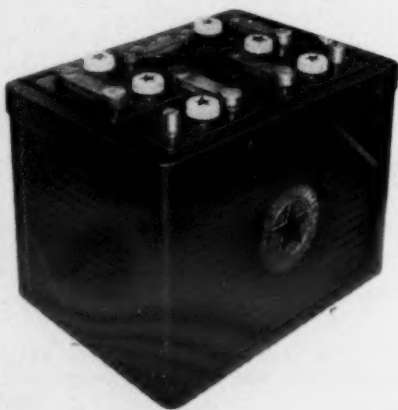
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LORRY—BUS—COACH

Alexander Accepts T.D.G. Bid

MR. Charles Alexander this week in Aberdeen announced that a formal offer had been made by Transport Development Group, Limited, to acquire Charles Alexander and Partners (Transport), Limited, and that he had accepted the offer for his own holding and recommended shareholders to do the same. The Transport Development offer is to acquire the whole of the issued share capital of Charles Alexander and Partners, amounting to 205,770 shares of £1 each, in exchange for 477,386 Transport Development ordinary 5s. shares, together with a cash payment of £48,973. Mr. Alexander has also accepted an offer from the group for the whole of the share capital of his other main business, James Paterson and Co. (Motor Hires), Limited, also in Aberdeen. The total value of the T.D.G. offer is about £538,000.

Charles Alexander and Partners is a post-nationalisation long-distance road haulage business with headquarters in Aberdeen and branches in London, Liverpool, Manchester, Glasgow, Edinburgh, Elgin, Macduff and Inverness. James Paterson and Co. (Motor Hires) is mainly engaged in providing road transport and warehousing services to the locality of Aberdeen. These two companies and Dundee Express, Limited, a wholly-owned subsidiary, operate approximately 200 vehicles. The associated companies, John Rhind

the closure of 24 railway stations north of Inverness. The company said that the resulting additional traffic had been "almost infinitesimal."

Coventry Finds a Way Out

EARLY morning concession fares are being withdrawn by Coventry Corporation Transport as from Monday next on the authority of the West Midlands Area Traffic Commissioners. This measure was sought to meet the wage bill, £89,000 higher annually as a result of the recent settlement. The last fares application was three years ago. Abolition of cheap early morning fares would increase revenue by £137,000 in the current and next full financial years, turning an estimated deficit of £123,000 for the two years into a surplus of £25,600; revenue in the last two years has risen by £95,000 thanks to extensions of services and reallocation of running mileage.

Slow-Down Signals Obstruct Police

PROSECUTING a lorry driver at Portmadoc, who was summoned for obstructing a constable in the course of his duty, Mr. I. ap Hughes told the magistrates that a system of signalling by lorry drivers being checked by police cars was being used in the area. The drivers, carrying sand and gravel from South Caernarvonshire quarries to



The Mobil Oil Co., Limited, can now supply both propane and butane from its Coryton (Essex) refinery. This load, for a Hereford customer, was going out in the Leyland Beaver articulated tanker at present on hire

Transport, Limited, Aberdeen, and Sutherlands of Peterhead (Road Hauliers), Limited, will continue to operate as before and will maintain their separate identity and character. Transport Development Group, Limited, thus acquires its largest and most important single road transport interest. Mr. Alexander will remain managing director of his companies, it is stated.

Mr. Alexander, when he founded his original haulage business, Charles Alexander, Limited, in Aberdeen in 1926, was a 23-year-old ploughboy until one day he was working in a field near Uduy. A friend of his schoolboy days drove past in a steam wagon with which he had started business. Eager to do the same, young Alexander cycled to Aberdeen to learn the transport business from the ground up. He bought a half-share in a lorry and in three months launched out on his own. He provided long-distance service for the Aberdeen fish trade, and is generally regarded as having founded his success in this field on guaranteeing delivery.

Five Million Tons of Filling Moved

THE large fleet of hundreds of lorries carrying filling material to the site of the Spencer steelworks being built by Richard Thomas and Baldwins, Limited, at Llanwern, near Newport, ended night work on September 2, but it will be some time before the lorries will stop altogether. About five million tons of material has been deposited at the site to raise the low-lying ground by 3-4 ft.

Haulage Wages Recommendation

SUBJECT to the customary process of objection and final confirmation by the Minister of Labour, the Road Haulage Wages Council has recommended wage increases of 6 per cent for haulage workers affected by its decisions. In effect, this means rises in basic rates of between 10s. and 11s. 6d. for drivers. The daily subsistence allowance will be increased from 16s. to 18s.

Two-Door Buses for Blackpool?

BLACKPOOL Transport Committee is understood to be considering buying transit-type buses, with front entrance and rear exit. Alderman E. E. Wynne, chairman, said last week that because of the difficulties conductors now had in existing buses in crowded summer conditions, as well as other factors, they estimated that they were losing between £30,000 and £40,000 a year in uncollected fares. The ordering of new buses, of either conventional or new design, is understood to be imminent.

Management of Drivers

THE Industrial Welfare Society has just published a summary of management and employment practices entitled *Drivers and Assistants: an Employment Review*, which is likely to be appreciated by all firms employing five or more transport drivers. Its object is to stimulate reflection and discussion about the human aspects of road transport. Contents include informative articles on employment practices, incentive schemes, training, education and qualifications and a driver's responsibilities at law. The address of the society is 48 Bryanston Square, London, W.1.

No Fares Increase for Highland

APPLICATION by Highland Omnibuses, Limited, to introduce increased fares, has been refused. This was announced on August 26 in Aberdeen by Mr. Alex Robertson, deputy chairman of the Scottish Area Traffic Commissioners. The public sitting was in Inverness in July and the revised faretables then proposed involved increases ranging from 4d. to 4d. on single journeys, and 1d. to 7d. on return journeys, as well as a rise in weekly journey and scholars' tickets. The contention of objectors was that the application was premature, as the company was bound to benefit considerably as a result of

Trawsfynydd nuclear station site, either flashed their lights or used a "thumbs down" signal or signalled to other drivers to stop when they saw other cars being followed by police cars.

P.S.V. and G.V. Regulations Reissued

FOUR new regulations, which do not make any change of substance in procedure, but merely include such verbal amendments as are required because of the consolidation of the Road and Rail Traffic Act, 1933, as amended, into the Road Traffic Act, 1960, come into force, with the 1960 Act, on September 1. They are:

- The Goods Vehicles (Licences and Prohibitions) Regulations, 1960 (S.I. 1960, No. 1505);
- The Public Service Vehicles (Licences and Certificates) (Amendment) Regulations, 1960 (S.I. 1960, No. 1504);
- The Public Service Vehicles (Contract Carriage Records) Regulations, 1960 (S.I. 1960, No. 1503); and
- The Public Service Vehicles (Particulars of Interests) Regulations, 1960 (S.I. 1960, No. 1506).

Alternative for Smoking Objections

DESPITE the submission from counsel representing United Automobile Services, Limited, that the National Society of Non-Smokers had no statutory right to appear at all, the Northern Area Traffic Commissioners consented to hear its representation, which was that United should be required to ban smoking in the lower deck of double-deck buses. The hearing was of a licence renewal application by U.A.S. The chairman, Mr. J. A. T. Hanlon, rejected the proposal by the society. In a separate decision, he said that as far as he knew the commissioners had never refused to hear from members of the public. The 1930 Act did not preclude a traffic court from hearing any evidence which might affect the granting of licences.

Earlier Decision Reversed

Mr. Hanlon referred to a similar application by Durham County Council and others. Then the commissioners imposed a limited restriction on smoking on routes operated by the Northern General Transport Co., Limited. The decision was reversed on appeal. That, said Mr. Hanlon, did not mean that the commissioners had no right to impose such conditions: that had been established. But the Minister thought that comparative inconvenience on each route should be investigated, and considered that there had been insufficient evidence to support the change.

For the United company, Mr. J. L. R. Croft said that letters and a petition produced by the society did not fulfil the Minister's requirements. Many people named did not live in the areas covered by the routes in question and there was no practical evidence from passengers themselves. Mr. B. G. Montgomery, for the society, said the company was one of the few in the country which did not impose at least some restriction on smoking. Local authorities in the area already did so.

Mr. Hanlon said there seemed to be a misapprehension about the function of traffic commissioners in cases of this sort. It was not their job to tell companies to put up "No Smoking" notices—a power they already had. If a member of the public objected to the way a route was being run he should complain to the company, and appeal to his local authority if nothing were done. If the complaint were justified the authority would approach the commissioners and a notice might be served on the bus company.

Bus and Coach Developments

Godiva Bantam Coaches, Limited, Coventry, applies for the licences of A. Cox and F. W. Septon trading under that fleet name.

Southdown Motor Services, Limited, proposes to divert its services 9 and 9A in Littlehampton to serve the Wickbourne Estate.

Aberdeen Corporation proposes a daily service between Castle Street and Byron Square via Union Street, Rosemount Viaduct, Beechgrove Avenue, Lang Strachan, Grunfern Road, Provost Fraser Drive and Byron Avenue.

Glasgow Corporation seeks to divert its George Square—Easterhouse (Brunstone Road) service at the junction of Springbois Road and Edinburgh Road to operate via Wellhouse Road, Bartiebeth Road, Westerhouse Road and Lochend Road to Lochdochart Road.

THREE NEW SCAMMELLS

Articulators and Rigid Eight-Wheeler

AT the forthcoming Commercial Motor Show, which opens at Earls Court on September 23, Scammell Lorries, Limited, will be showing three entirely new vehicles, in company with examples of its established range of vehicles and trailers for loads from 3 to 150 tons. The new vehicles are the Routeman rigid four-axle chassis for 24 tons gross, the Handyman two-axle tractor with matched bogie semi-trailer for similar gross

primary gears and epicyclic secondary gears in the hubs. The interaxle differential lock is air operated from the cab, where a warning light is shown when in the locked position.

Steering and Suspension

The I-section front axle, which has machined forged-steel stub axles and composite p.t.f.e.-impregnated bronze-faced thrust washers, is



New Scammell Trunker articulated five-axle tanker, with Gardner 6HLX horizontal diesel engine and trailer air suspension, for 24 tons gross at home and up to 30 tons elsewhere

weight and the Trunker three-axle tractor and matched bogie trailer limited to 24 tons gross in this country but readily adaptable for 30 long tons gross for operation elsewhere. Notable features of the new semi-trailers are non-reactive independent-trailing-arm bogies with rubber and pneumatic suspension, while the tractor of the Trunker outfit is unique in Britain for having a horizontal diesel engine mounted low down in the frame.

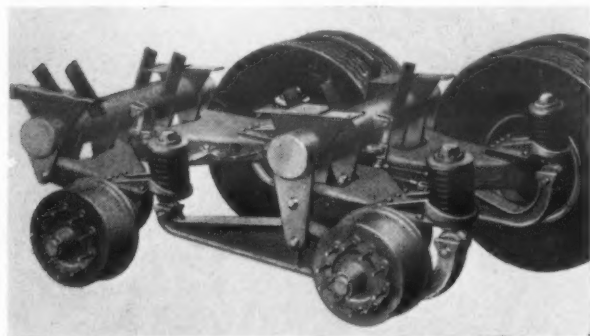
Trunker Tractor

Of the new vehicles, the Trunker undoubtedly shows the greatest amount of technical innovation, which can be seen in the underfloor back-to-front engine-transmission layout, in the bogie suspen-

suspended on 55-in. by 3-in. semi-elliptic springs, with rubber-bushed front eyes and renewable slipper pads at the rear, damped by Armstrong telescopic units. Steering embodies Marles cam-and-roller gear, a 19½-in. steering wheel and self-adjusting ball joints in draglink and trackrod, while provision is made for fitting a hydraulic servo. The double-drive bogie is suspended on a non-reactive parallel-link system employing Hendrickson rubber cushions and a balance beam and torque-reaction links on each side; all link joints are bushed with rubber and require no lubrication.

The frame sidemembers are of high-tensile welding-quality steel channel sections with general dimension of 8 in. by 3½ in. by ½ in. They are cranked in elevation to pass under the horizontal engine and there is a boxing plate in the rear portion, mitre joints being used at the frame junctions with a welded-in web plate. Five crossmembers, the front two of channel and the others of tubular section, are all bolted into place. A new turntable of high load capacity is carried on two substantial bonded-rubber bushes arranged as trunnions, one on each side of the tractor frame. The turntable comprises two ring-shaped castings, the lower one of which embodies a floating ring of low-friction material and the two bosses to accommodate the rubber-bushed trunnions. Four pads bolted to the top casting are arranged and shaped to come down outside and under a rim formed on the lower casting. These maintain the working position of the turntable components but, in conjunction with the rubber bushes, permit limited sideways roll between tractor and semi-trailer. The turntable requires no lubrication and air, hydraulic and electrical lines for the semi-trailer are taken through its centre.

The cab of the Trunker is the forward-control two-skin pressed-steel unit already familiar on current Albion vehicles. It has easy access steps ahead of the front wheels covered by the doors. At the exhibition, the tractor will be coupled to a Scammell 4,000-gal. frameless tank, divided into two compartments designed for gravity discharge



Scammell non-reactive rubber-suspension bogie fitted to new 27-ft. automatic-coupling semi-trailer (below)

sions of both tractor and trailer and in the braking system. It will be shown on the stand as a 4,000-gal. fuel oil tanker with an overall length of 34 ft. 11 in. The tractor has a wheelbase of 9 ft. and is described as a lightweight unit. It has the new Gardner 6HLX horizontal diesel engine, which develops 150 b.h.p. at 1,700 r.p.m. and 485 lb./ft. torque at 1,000 r.p.m., mounted in rubber well down in the frame behind the cab. Drive is taken forwards through a single dryplate clutch, fitted with clutch brake and self-adjusting hydraulic actuation, to a six-speed constant-mesh gearbox mounted ahead of the engine under the cab floor, where a simple direct change speed lever can be fitted. Engine clutch and gearbox are carried in one



Scammell Handyman tractor, with many units common to established Highwayman range, coupled to new 27-ft. rubber-suspension trailer

unit in rubber-bushed swinging links at the timing-case end and vertical rubber mountings and check pads at the flywheel end. The radiator is positioned conventionally, necessitating an unconventional drive for the 19½-in. six-blade fan. The fan drive is in fact taken initially from the intermediate shaft of a power takeoff fitted to the main gearbox, thence by means of a rubber-jointed shaft fitted with adjustable pulley and vee belt.

The six-speed overdrive-top gearbox provides a ratio spread from 6.55 to 0.622 to 1 and is fitted with power takeoff of 30 b.h.p. at 1,500 r.p.m. (output shaft) capacity and a Deri-Sine 20-g.p.m. 2,000-p.s.i. hydraulic motor. The gearbox incorporates a gear pump for total pressure lubrication with low viscosity oil. Also fitted to the output face of the gearbox is a transposing gear, with fixed ratio of 1 to 1 and single helical gears, for turning the drive through 180 deg. A Hardy Spicer propeller shaft with needle-roller-bearing joints transmits the drive to a relay gearbox, incorporating a lockable interaxle differential, mounted on the leading axle of the bogie. Drive is taken to the first axle directly through helical spur gears and to the second axle by a short shaft passing through the first-axle casing and a second Hardy Spicer two-universal-jointed shaft. Driving axles are double reduction units having spiral-bevel

or discharge by Stothert and Pitt pump. The pump is driven by hydraulic motor powered by the already mentioned hydraulic pump driven from the tractor power takeoff. The provision of hydraulic power on the tractor gives ability to operate it with a variety of semi-trailer tanks since a hydraulic motor on the trailer can be coupled to a fluid pump, compressor or exhauster to suit the cargo handled. The tractor can also of course be used in conjunction with normal semi-trailers.

The running gear of the frameless tanker is a new Scammell non-reactive air-suspension design employing four independent trailing arms pivoting on rubber trunnion bearings and each supported by a 14-in. dia. two-convolution air bellows. The design gives wide-based support and levelling valves at each side provide progressive resistance to rolling after a delay period sufficient to permit normal suspension movements. Braking and lateral displacement stresses are taken through the trailing arms but additional roll control is provided by a beam on each side linked to the extremities of the trailing arms; a rod connects the centre of each beam to the frame-mounted levelling valves for adjustment of pressure in the bellows in accordance with changes in relative position, while a second rod registers with a special rubber

(Continued on page 14)



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Brecon—Railway Crossroads—I

(Continued from page 3)

1820, making the combined system 36½ miles, by far the longest rail route at that time. The Hay Railway was not a financial success by modern standards, but it continued to serve the district for nearly 50 years before replacement by the existing railways. Considerable lengths of its site may still be traced.

The Brinore Tramroad

Although the canal provided Brecon with communication with many of the coal mines and iron-works, some of this was circuitous. To give a more direct route, in particular from the works in the Rhymney Valley, a meeting was held in Brecon on December 20, 1813, to consider making eight miles of tramroad from Trefil, where it would connect with Benjamin Hall's line from Rhymney furnaces and Bryn-or Patch, passing round the head of Duffryn Cawnon and descending the east side of Glyn Collwyn to a wharf on the canal at Talybont. Samuel Church, a Brecon solicitor, was among the chief local promoters.

The Brinore Tram Road, constructed without parliamentary consent, was opened in mid-May 1815, the principal users being the Rhymney Iron Company and Messrs. Dixon and Overton, to whom the line was leased initially for seven years at 7 per cent on the capital cost, £13,000. After expiration of the lease, dividends diminished until in 1855 only 2½ per cent was distributed. In that year the Rhymney Railway considered buying the tramroad and converting it for locomotive haulage. Six years later, a proposed Sirhowy and Brecknockshire Railway sought to do the same thing, but after use in carrying materials for construction of the Brecon and Merthyr Railway, the line gradually fell into a state of disuse. The site of the tramroad and its canal transhipment wharf at Talybont still survive intact. Recently the legal position in regard to the ownership of the tramroad site has been the subject of inquiry by Brecon County Council and the Forestry Commission.

A Potential Railway Centre

Though Brecon itself was reasonably well provided with canal-tramroad transport, the more progressive amongst its leading inhabitants still felt that the town and county were suffering from a lack of up-to-date, locomotive-worked railways and that something should be done about it. At this juncture, 1844, there came the boom in railway speculation known as the "Railway Mania." Brecon at once assumed potential importance as a

focal point, or as an intermediate station, of eight major schemes designed to connect the North of England and West Midlands with Swansea and/or Milford, by way of Worcester and Hereford or Central Wales. The bubble burst in 1846-47 and all the grandiose proposals faded into thin air, causing keen disappointment in Brecon, though probably not much actual loss of local capital. A period of countrywide stagnation set in.

After the dropping of a proposed extension of the Newport, Abergavenny and Hereford Railway to Brecon, local parties decided the time had come to put the town on the railway map. The first proposal was, in part, a revival of one of the mania schemes for a line from the Shrewsbury and Hereford Railway at Leominster, through Eardisley and Hay to Brecon, with an eye to pushing on to Swansea or Milford later. Viscount Hereford presided over a well-attended meeting of landowners and country gentlemen at Brecon on July 31, 1854. Promises of only £48,000, barely one-quarter of the estimated cost, could be obtained and the scheme was shelved. As had so often happened elsewhere, pecuniary aid did not match vocal support. Two years later the first steps to form the Brecon and Merthyr Tydfil Junction Railway were being taken.

The Brecon and Merthyr

The Brecon and Merthyr was largely sponsored by Brecon and Breconshire people, including the banker, John Parry de Winton* and John Cobb, a local solicitor. From a terminus near the canal head at Brecon, the proposed route lay along the west bank of the Usk to Talybont, whence the present route was taken to near Dowlais. To avoid duplication between Brecon and Talybont, the promoters joined forces with a Breconshire Railway and Canal Scheme, which intended to convert part of the B. and A. Canal into a railway, which the B. and M. would have joined at Talybont. But the scheme fell through and when the B. and M. secured its Act of incorporation on August 1, 1859, it authorised only a line from Talybont to near Dowlais.

Meantime, the picture had changed and possible competitors were in the field. The Hereford, Hay and Brecon Railway had also been incorporated in 1859 and proposed to purchase the Hay Railway though apparently only with the intention of excluding the B. and M. and Mid-Wales Railways from the town, or at least making their access more

difficult. Eventually it was agreed that the H. H. and B. should purchase the Hay Railway and sell the unwanted section west of Pontithel (near the present Three Cocks Junction) to the other companies, the Mid-Wales taking the portion as far as Tallyllyn and the B. and M. thence into Brecon, where a joint station was to be set up. In 1860, the B. and M. secured an Act to extend its line from Talybont to Tallyllyn and to adapt the Hay Railway from there to Brecon for locomotive working.

Construction

The contractors, Davies and Savin, started work in January, 1860, using the Brinore Tramroad and B. and A. Canal to get materials to the northern end. Despite unfavourable weather and the difficulty of enlarging the Hay Railway's 674-yd. tunnel at Tallyllyn, the whole of the 19 miles between Pant and Brecon was opened to traffic on May 1, 1863; some coal had, in fact, been worked into Brecon during April. The connection between Pant and Merthyr was by horse bus until the branch from Pontsticill was opened on August 1, 1868. The present halt at Groesffordd, between Tallyllyn and Brecon, was opened by the G.W.R. on September 8, 1934.

At Brecon, the station was at Watton on the site of the present goods yard, opposite to but on a higher level than the Hay Railway's terminus at the canal wharf. The passenger station buildings and platform are still in situ. This terminus was used by the H. H. and B. and Mid-Wales Companies when their trains entered the town in 1864. Because of friction with the Neath and Brecon Railway, referred to in the second part of this article, the original conception of a single station at Free Street (the present passenger station) for the use of all four companies did not mature until March 1, 1871. Mid-Wales trains, which had been transferred to the N. and B. station, Mount Street, in April, 1869, removed to Free Street on May 1. N. and B. trains used it from August 3, 1874. Free Street Station was wholly B. and M. property, use by the other companies being agreed on varying terms. The Midland Railway paid an annual rental of £410 whilst operating the H. H. and B. and £2,150 from 1877 when it took over the Swansea Vale and N. and B. lines. The payment reached a maximum of £2,650 in 1888. The Midland undertook to provide its own booking clerk (each company had a separate office of identical dimensions!), locomotive power for shunting and forming its own trains.

Mountainous Line

As might be expected, the B. and M. is a mountainous line. After falling steeply at 1 in 40 between Tallyllyn and Talybont, it rises 6½ miles at 1 in 38 to the east end of the 667-yd. Summit, or

Torpantau, Tunnel. This section is the famous "Seven Mile Bank," with the line carried on a shelf in the hillside above Glyn Collwyn through some of the finest train-view scenery in Wales. Runaway sidings for use in emergencies are provided at Pentir Rhiw and Talybont, the latter consisting of a half-mile extension of the northbound passing loop on to the rising gradient towards Tallyllyn. Beyond Summit Tunnel and the lonely Torpantau Station, 1,310 ft. above sea level, the line descends at 1 in 47 to 1 in 55 to Pontsticill Junction.

Up to about 1920, there was a fairly steady northward flow of coal traffic exchanged at Tallyllyn with the Cambrian Railways (which had worked the Mid-Wales since 1888 and purchased it in 1904) and the Midland. The direct east-north loop at Tallyllyn had been built by the B. and M. for this purpose, together with some exchange sidings. The loop was also used for seasonal passenger and excursion services. In recent years freight has declined sharply, leaving only a small amount of local coal and general merchandise. Special trains with tanks of liquid ammonia from Dowlais to Haverton Hill pass over the Tallyllyn Loop en route to Hereford, and the empties return the same way, the sole reminder of the through traffic of more prosperous times.

Mid-Wales Railway

Among the tangle of schemes put forward in the "Mania" of 1844-46 were several designed to connect the Merseyside towns, Cheshire and Shropshire with South and West Wales, in particular the port of Milford. None of these reached even partial fruition, but when financial and economic confidence returned in the late 1850s, some of them were revived in different form by more responsible parties. The Mid-Wales was one of these proposals. The projected line started at Llanidloes by a junction with Llanidloes and Newtown Railway, then on point of completion—it was opened on April 30, 1869—and followed the Dulas and Wye valleys through Rhyader to Llechryd, near Builth Wells, where it turned south-west to Llandovery to join the Vale of Towry Railway. The scheme was, in fact, an extension of the Llanidloes and Newtown whose shareholders, and those of other companies forming a continuous line northward from it to Oswestry, were principal promoters of the Mid-Wales.

In Parliament the Bill met opposition from another new venture, the Central Wales Railway, which sought powers for a line from Knighton to Llandovery with the same intention as the Mid-Wales, that of securing eventually a through route to Milford, using the same course as the Mid-Wales between Llechryd and Llandovery. Parliament cut short both schemes above Builth Wells, the Mid-Wales at Newbridge and the Central Wales at Llandrindod, leaving the companies to apply for further powers next session. The Mid-Wales Act received Royal Assent on August 1, 1859, with powers to build the Llanidloes—Newbridge section, 22 miles.

Diversion to South Wales

On the same day the Brecon and Merthyr was sanctioned and the Mid-Wales, having to plan new strategy, decided on an attack on South Wales, leaving the Central Wales to pursue the Llandovery line. In 1860 the company obtained powers to extend from Newbridge to join the Hay Railway at what is now Tallyllyn Station, making north and east-facing junctions with the H. H. and B. at Three Cocks. In the event, as already related, the H. H. and B. purchased the Hay Railway and sold the Three Cocks—Tallyllyn section to the Mid-Wales, resulting in the present normal junction at Three Cocks. The Mid-Wales was thus 49 miles long, on a sharply undulating gradient profile with many stretches of 1 in 75, though this did not deter it from relying on through traffic for much of its revenue.

In common with the B. and M., the contractors were David Davies (the celebrated "Davies The Ocean") and Thomas Savin. Because the promoters were unable to raise all the capital, Davies and Savin came to their assistance, finding the whole of the £36,300 Parliamentary deposit. After Davies' estrangement from Savin in 1861, construction was taken over and completed by Watson and Overend, a firm associated with Savin.

Opening throughout from Llanidloes to Tallyllyn took place in 1864—ceremonially on August 23, for mineral traffic on September 1 and to passengers and merchandise on September 21. The H. H. and B. which used the Mid-Wales between Three Cocks and Tallyllyn, opened on September 19. Powers to use the B. and M. line between Tallyllyn and Brecon were given to both companies. Except during the tourist season and on special occasions, passenger traffic was not heavy, though interchange with the Central Wales line at Builth Road (known as Llechryd until 1889) was encouraged by good connections. From 1891 to 1939, with a break during the 1914-18 war, through services from South Wales to Llandrindod Wells and Aberystwyth via Tallyllyn were provided for holidaymakers; the former reversed over the connecting line at Builth Road.

Relations With Other Companies

On the freight side, friendly relations and traffic agreements with the B. and M. secured a steady, if not normally heavy, flow of northbound coal. Valuable traffic passing between the London and North Western and B. and M. lines via Hereford and Tallyllyn was diverted to the Builth Road and Mid-Wales route from November 1, 1869.

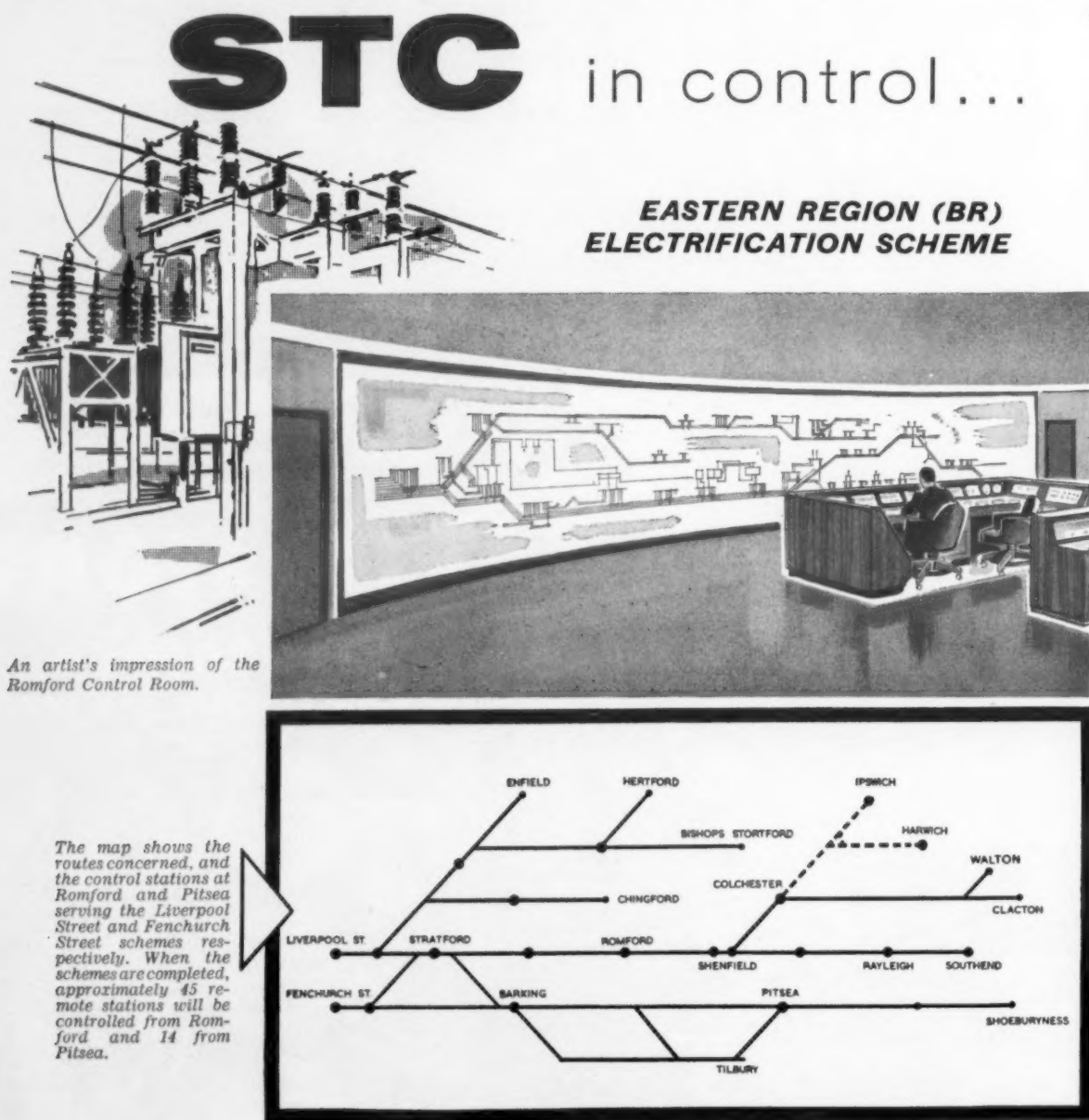
Unlike neighbouring lines in their early years, the Mid-Wales possessed its own locomotives and rolling stock and for 24 years these were used to work the line as an independent unit. This was not an economic arrangement and when replacement became essential, the company entered into an agreement with the Cambrian Railways to purchase the stock of 10 locomotives and undertake working of the line. This started on April 2, 1888, and was carried to a logical conclusion by complete amalgamation of the two companies on July 1, 1904. The Cambrian Railways Company consisted of an amalgamation of six formerly independent undertakings of which the Mid-Wales was the last to join.

(To be continued)

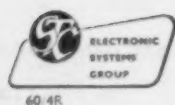
Fodens, Limited, is opening a new service depot in Cardiff.

The name of Elephant Oil Mills (Private), Limited, Bombay, a subsidiary company of Blundell Spence and Co., Limited, has been changed to Blundell Eomite Paints Private, Limited.

A new company, D.A. Stuart Oil Co. (G.B.), Limited, has been formed as a subsidiary of the Amber group of companies to market in this country the products of D.A. Stuart Oil Company, of Chicago and Toronto. Oils and greases developed to meet a variety of automotive and industrial lubrication requirements are now being marketed by the new company.



STC, foremost among manufacturers of Supervisory Remote Control and Indication Systems, are now engaged in the installation of equipment to provide remote supervision of the feeder stations and track sectioning cabins on the routes out of Liverpool Street which are shortly to be electrified at 6.25kv and 25kv. Equipment is also in course of manufacture for the similar electrification scheme for the Fenchurch Street routes. The equipment employs the latest techniques in transistorised frequency-modulated signalling and incorporates special safeguards to prevent any incorrect operations. The control panels are of the 1' mosaic tile type, and control and indication devices have been specially developed to meet the B.T.C.'s requirements.



Standard Telephones and Cables Limited

Registered Office: Connaught House, Aldwych, London, W.C.2

INSTRUMENTATION AND CONTROL DIVISION

GREAT CAMBRIDGE ROAD

ENFIELD

MIDDLESEX

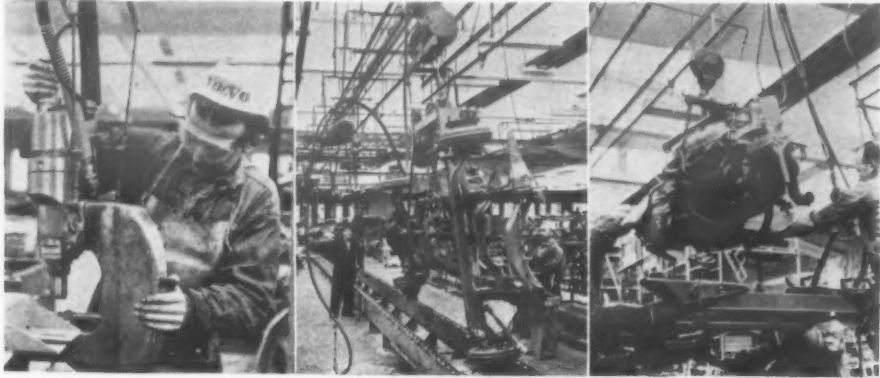
PROGRESS WAY

SWEDISH COMMERCIAL VEHICLES

Volvo Production at Göteborg (Cont.)*

A PART from the small delivery and dual-purpose vehicles based on private car components, the wide range of commercial vehicles produced by Aktiebolaget Volvo is based on the minimum number of major running units and these are maintained in flow production at the various plants, originally separately owned and operated, absorbed by the Volvo Group over the years. The group thus forms a series of specialist manufactur-

150 b.h.p. at 2,200 r.p.m. and 427 lb./ft. torque at 1,100 r.p.m., driving through a five-speed overdrive-top synchromesh gearbox or a S.C.G. Wilson air-operated gearbox and hypoid rear axle. The latest development is the introduction of the Volvo fully automatic transmission, which is now offered with this chassis. Dual-circuit air brakes, a drum-type transmission brake immediately ahead of the rear axle and power steering servo are standard



Cold-squeeze riveting a chassis frame; turning a chassis over on the conveyor after completion of axle and suspension assembly; right, dropping a V-8 petrol engine-gearbox into the same L420 chassis

ing plants organised and equipped on the most modern lines supplying major components to the parent company's plant at Göteborg, where vehicle assembly and all research, design and development are undertaken.

With regard to the numerous smaller specialised components, Volvo claims a competitive advantage from the absence of a Swedish components industry. Unlike the big motor-manufacturing countries, which in general act as sealed units and do not go beyond their own shores for their requirements in this field, the Swedish vehicle manufacturer has complete freedom to select the best possible product, wherever it is produced, without the need to consider nationalist feeling. Thus Volvo commercial vehicles embody many proprietary components of American, British, French and German origin. Evidence of this freedom of selection is seen in the fuel-injection equipment for diesel engines, both German Bosch and British C.A.V., being used. Similarly, although British-made Sankey pressed-steel wheels are the standard fitment, in some markets a cast-steel spoked wheel is preferred and a Swiss product of this type is offered as alternative equipment on heavy chassis.

Vehicle Assembly

Medium and heavy vehicle assembly is carried out on powered conveyors, with an orderly flow of sub-assemblies to the main assembly line. A batch-production programme is followed. An area of the main assembly shop forms the chassis frame production unit, where all frames are assembled from steel channel sections by cold squeeze riveting. Largely standard sections are used, extra strength being obtained where required by riveting steel strip on top and bottom channel flanges and the more usual flat or channel-section flitchplates at points of high stress in the sidemembers. Painting of the frames is carried out on the assembly line, chassis passing through spray booths and drying ovens on the conveyor belt before entering the main assembly area. A touch of colour is added by the Volvo practice of painting all home-market chassis grey and all export chassis red.

A feature of Volvo commercial vehicles is that all wheels are balanced before they leave the tyre-fitting shop. Handling of the heavy tyre wheels is also noteworthy. A locally designed powered system lifts completed wheels from the fitting shop into an overhead storage area, whence they are

equipment. The chassis weighs about 5 tons 6 cwt. and is designed for 14½ tons gross.

The three vertical front-engined passenger chassis are the B635, B615 and B705, employing the basic 150-, 115- and 90-b.h.p. diesel engines respectively driving through matching five-speed overdrive-top synchromesh gearboxes. All have drum-type transmission handbrakes and the two smaller chassis are offered with optional Eaton two-speed axles. The B635 is available with different wheelbases for overall lengths up to 38 ft. for bus and coach operation at a maximum gross weight of 12 tons 16 cwt. The B615 is a medium-capacity chassis for overall length up to 34 ft. and a maximum laden weight of 10½ tons, while the B705 caters for the feeder-service and small-coach field with a recommended maximum running weight of 8 tons 7 cwt.

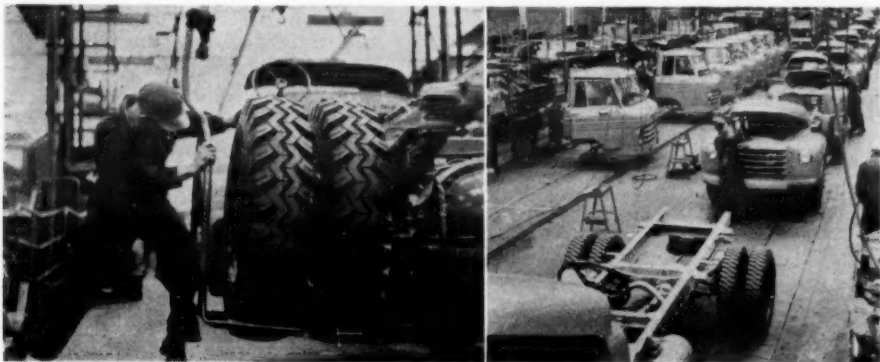
Goods Vehicles

Goods vehicles above the delivery van class



Volvo passenger chassis assembly line, with B655s (left) and B635s going through

range from petrol-engined chassis with payload capacities from about 2 to 6 tons and diesel-engined chassis from 6-ton capacity on two axles to about 12 tons on three axles. The heavier vehicles are produced in articulated tractor versions and are also geared and powered to haul independent trailers, while vehicles for loads outside the standard range are built to special order. With the exception of the L420 and L430 petrol-engined 2- to 5-ton range, which has a pressed-steel forward-control cab with entry step ahead of the front wheel, all Volvo goods vehicles have normal-control cabs with large alligator bonnet. For the forward-control chassis a new V-8 petrol engine producing 120 b.h.p. at 4,000 r.p.m. and four-speed



Useful powered assistance in wheel mounting; right, a batch of L485 diesel-engined chassis nearing the end of the assembly line, with forward-control cabs on the left ready for the next batch of L420s

withdrawn as required by powered lift at the assembly line. A further feature of all two-axle vehicles having powered braking is that separate braking circuits are employed for front and rear axles. In the case of vacuum-hydraulic brakes on medium-weight vehicles, two Clayton Dewandre Hydrovac units are fitted, while heavier vehicles having direct air-pressure braking employ the Bendix-Westinghouse dual valve and dual circuits.

Passenger Vehicles

The Volvo passenger vehicle range comprises four basic diesel-engined single-deck chassis, only one of which has underfloor-engine mounting. This is the B655 developed by the company specially for heavy stage-service work to take up to 48-seat 32-ft. long bodywork. It has a frame with raised section over the front axle and centrally positioned engine to provide adequate ground clearance and dropped front and rear sections to easier access. Power comes from the D96 AL diesel engine, set to give

synchromesh gearbox have been developed and the L430, at the top end of the range, is offered with alternative two-speed axle.

The medium-capacity normal-control range for about 6-ton payload within a gross weight of 9½ tons is offered with either a six-cylinder in-line petrol engine of 115 b.h.p. as the L370 or the small D47A diesel of 90 b.h.p. as the L375. Both have five-speed synchromesh gearboxes and optional single- or two-speed rear axles. This range also includes the L385 bonneted four-wheel-drive chassis for 10 tons 16 cwt. gross weight on the road and 8 tons 17 cwt. across country; the chassis weight is about 4½ tons. The four-by-four is powered by the medium D67A diesel developing 115 b.h.p., driving through a five-speed synchromesh gearbox, two-speed auxiliary-transfer gearbox and hypoid axles.

Turbocharged Diesel

Heavy transport needs are catered for in the Volvo range by the recently introduced L485 and (Continued on page 13)

Sitting Pretty

This prototype seat is a fine example of co-operation between the Chief Designer of Pel Ltd., and the Bintex Design Service.



... with that urgently needed prototype completed already! Obviously this firm have worked with the Bintex Design Service right from the drawing board stage of this new seating project. That's why the prototype was completed so quickly. But this fast-working specialist team offers more than speed. With their vast experience you'll benefit in a dozen ways—including costs! Remember hard-wearing Bintex Super Foam Latex cushions cut production costs. You can style both for luxurious comfort and passenger-attracting looks without pricing yourself out of the market.

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* The first part appeared August 20.

*If you're interested in cutting transport costs -
- and who isn't?*

PURCHASED 1950

OVERHAULED 1954

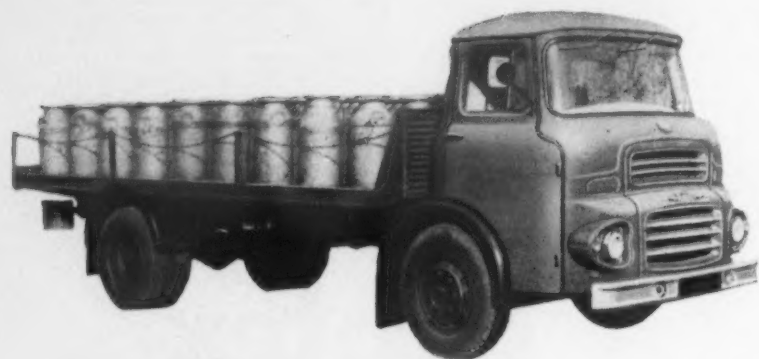
MILEAGE TO DATE 415,000

FUEL CONSUMPTION
20.2 m.p.g.

TAKE A LOOK AT THESE FIGURES—they represent the ten-year record of an Albion Chieftain engaged on milk haulage for Miers Transport Ltd., of Wolverhampton. Since 1950, fuel consumption has never dropped below 19 m.p.g., and today, 217,000 miles after its first—and only—major overhaul, the vehicle is keeping up a steady 20.2 m.p.g.—and should be good for quite a few years yet.

On fuel saving alone that means a pretty tidy economy... add the low cost of maintenance and a non-stop earning capacity, and it is obvious why the operator—like thousands of others—cannot speak too highly of this magnificent 7-tonner.

One word more. If a ten-year old Chieftain can put up a performance like this, imagine what the new model—shown below—can do. But on second thoughts don't imagine. See for yourself by arranging a demonstration now.



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FOR HIGHER EARNINGS & LOWER COSTS

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NEWS FROM ALL QUARTERS

Blackpool Tram Route to Go?

One of the last tramway operators in Britain is believed to be considering a changeover to buses on at least part of one of its remaining routes. The existing track on the Lytham Road to Squires Gate has reached the end of its useful life—it was laid more than 25 years ago. Cost of track renewal would be more than £100,000. Alderman E. E. Wynne, chairman of the transport committee, commented last week. "The old story that trams are the best money-makers is no longer true on the internal routes. Buses now hold pride of place."

Provision for Non-Smokers on Tube Lines

London Transport is on the way to completing a planned extension of non-smoking accommodation on Underground trains to an overall proportion of slightly under 50 per cent of total passenger space. On the District, Circle and Metropolitan Lines generally there is no change; half of each 6- or 8-car train consists of non-smoking cars. On the tube systems there will be three such cars in seven-car trains or four in eight-car trains. On the surface lines the non-smoking cars are normally trailers or non-driving motor cars, but on the tube lines they are driving motor cars. The extension of this accommodation is felt to be in accordance with passenger preference.

Traffic Survey in the West

Motorists travelling on all the main routes from the Midlands and London area to South-Western England last weekend were asked to help in providing information which may decide the future pattern of the road system in the Bristol—Exeter region. A widespread origin and destination survey was arranged to take place between 6 a.m. and 10 p.m. daily on Saturday, Sunday and Monday, August 27, 28 and 29, and at 13 census points, drivers of motor vehicles were stopped and asked for information as to the origin and destination of their journeys. Not every driver was stopped, but a representative sample travelling in either direction at each check point was asked to give information; this was to avoid undue delay or traffic congestion.

New Metropolitan Line Timetable

A new timetable for the London Transport Metropolitan Line will be introduced on September 12 with the introduction of electric trains to Amersham and Chesham. While the frequency of the train service south of Rickmansworth will remain generally as at present, the service to Amersham will be improved. Electric trains will be of existing compartment type rolling stock, replacing the steam trains completely on the Chesham branch and, at this stage, running to Amersham in off-peak periods only. On weekdays the through peak-hour trains from Chesham to London will be hauled by electric locomotives and the Chesham—Chalfont shuttle service will be operated by three-car trains. The electric trains from London which at present terminate at Rickmansworth in off-peak hours will be extended to Amersham, giving about 20 extra trains a day over this section.

Canadian Railways Co-operate

The two large Canadian railway systems have announced changes in passenger equipment on transcontinental trains for the slack season. In a joint statement Messrs. Donald Gordon and N. R. Crump, presidents respectively of the Canadian National and Canadian Pacific Railways, announced that each would continue to operate two daily transcontinental passenger trains. The C.P.R. Canadian and the C.N.R. Super Continental would continue to provide fast transcontinental service with a variety of accommodation. With effect from September 24 the C.P.R. Dominion and the C.N.R. Continental would handle only express, mail and coach traffic, together with sleeping-car accommodation in certain local areas. The decision to alter the make up of the trains was taken for the purpose of matching service to demand in the off-season and as part of the continuing effort of the two railways to eliminate duplication and thus effect economies in operation.

The Last Run of Steam

A special remembrance day is being set aside this year to honour the steam locomotive and its 124 years of faithful service to the development of Canada. The salute will be taken by the Canadian National Railways' No. 6153. This veteran locomotive with a million miles of service is being polished to haul a special 12-car train on September 4 from Montreal to Ottawa and back to mark "the Last Run of Steam." The excursion, organised by the Canadian Railroad Historical Association, will mark the demise of the steam locomotive on Canadian National Railways lines. It also will symbolise the era of the steam locomotive in Canada which began in 1836 when the Champlain and St. Lawrence Railway inaugurated a service from Laprairie, Que., to St. Johns, Que. No. 6153, a Northern type, was built by the Canadian Locomotive Company in Montreal in 1929 and was chosen for this honour as typical of the 190 locomotives of its class. It was withdrawn from service in 1959.

More Parking Meters for Central London

Two further parking meter zones come into operation in Westminster and St. Marylebone on November 28, it is announced. Westminster is to have an additional 810 meters and St. Marylebone 770. The Minister approved the Westminster scheme only this month. In Westminster, the present Mayfair zone will be extended south and south-east into St. James's and the boundaries of the new area will be Green Park on the west, Pall Mall, Carlton Gardens and Carlton House Terrace on the south, Trafalgar Square and St. Martin's Lane on the east and Coventry Street and Piccadilly on the north. The St. Marylebone scheme is an extension of the existing zone eastwards to the borough boundary with St. Pancras. The northern boundary will be New Cavendish Street and the southern boundary Oxford Street, where the new zone will link up with the neighbouring Mayfair meter zone. With the 684 meters already authorised for the Bloomsbury area of Holborn, the number in Central London will then total over 4,500.

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UNBROKEN RIBS You take the 'HIGHROAD' and get even—and therefore economical—wear across the whole width of the tread. Recessing gives cool running in the shoulder region.

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You take the 'HIGHROAD' and you experience new safety. Multi-directional notches in all tread ribs give powerful resistance to skidding at all loads on all road surfaces.

DOUBLE REINFORCED BUTTRESSES

You take the 'HIGHROAD' and get great strength throughout the shoulder region with protection from tread chipping caused by kerbing or backing on to ramps, ensuring maximum tread life.

ANTI-STONE-TRAPPING GROOVES

You take the 'HIGHROAD' and see how its narrow grooves of special design will not pick-up or carry destructive stones. The groove bases are also shaped to resist tread cracking.



COMMERCIAL AVIATION

The Short SC7

AID FOR KATUNAYAKE

LAST week Short Brothers and Harland, Limited, announced details of its SC7 Skyvan light freighter aircraft, which will carry 1½ tons of almost anything and operate safely at full load from any half-mile field, clearing or strip. Experience with the firm's own communication aircraft awakened Shorts to the potential of a light general-purpose aircraft capable of carrying bulky loads over difficult journeys such as sea crossings, or in undeveloped areas, fulfilling the same function as a station wagon or brake on land. Discussions with Miles Aircraft, Limited, revealed that that company had already started a design in this category known as the HDM106 and arrangements were made with Miles for the work to continue at Belfast. While credit is due to Miles for much pioneering work in this area, the Short design bears little relation to the earlier one. Main features of the Skyvan are the use of a large fuselage with internal dimensions, 6 ft. 6 in. by 6 ft. 6 in. by 16 ft., a built-in rear loading door, a high mounted high-aspect-ratio wing, and two six-cylinder GTS 10-520 Continental supercharged fuel-injection engines, each of 390 h.p., driving large propellers. Good performance, particularly under tropical conditions and on one engine, have been made key factors in design. The company is building two prototype aircraft and the first of these is due to fly in mid-1961. It is probable that Rolls-Royce will build the Continental engine under licence.

Agreement with Beech Aircraft

Short Brothers and Harland has also announced conclusion of an agreement with Beech Aircraft Corporation under which it will undertake the distribution of Beech light aircraft in the British Isles in conjunction with Aircraft Associates, Limited. A service and maintenance organisation, staffed by men trained at the Beech plant at Wichita, Kansas, U.S.A., is being established by Short Brothers at its Rochester factory. In forming this association with Beech Aircraft Corporation, Short Brothers are adding sales of business and private aircraft to the range of activities of its newly-formed light aircraft division, which is already engaged in the design and manufacture of the SC7. There is, indeed, a possibility that Beech may market or manufacture the machine in the United States.

British Air Traffic in June

It is provisionally estimated from statistical returns so far received that United Kingdom airlines' traffic on scheduled and inclusive tour services in June amounted to 50 million short ton-miles. This represents an increase of 22 per cent compared with June last year. Capacity operated increased by 28 per cent and the overall load factor fell from 63 to 61 per cent. In the first half of 1960 traffic totalled 214 million short ton-miles compared with 172 and 150 million short ton-miles in the first halves of 1959 and 1958 respectively.

New Services Approved

The Minister of Aviation, after considering the recommendations of the Air Transport Advisory Council, has approved the operation of the following services:

Inclusive tour service by Air Safaris, Limited between London (Gatwick) and Tarragona from August 24 until September 26, 1960.

Inclusive tour service to be operated by Skyways Coach-Air, Limited, between Manston and Montpelier from August 15 to October 31, 1960.

Inclusive tour service by Don Everall Aviation, Limited, on the route Belfast-Glasgow-Palma-Valencia from August 15 until September 26, 1960.

Inclusive tour service to be operated by Air Safaris, Limited, between Gatwick and Perpignan from August 19 to September 19, 1960.

Normal scheduled service to be operated by Skyways Coach-Air, Limited, between Lymington and Manston and Tours from August 19, 1960, to May, 1965.

Bonus for British Stewardesses

A new deal for British airline stewardesses came into effect on September 1 whereby girls giving up their jobs after five or more years qualify for a £50 payment for each completed year of service. This new arrangement follows an agreement reached with the trades unions at the National Joint Council for Civil Air Transport, and applies both to B.E.A. and B.O.A.C. The girls will receive £250 if they leave after five years' service, plus £50 for each completed additional year up to a maximum of 10 years. For girls who complete the full 10-year period covered by the agreement there will be an extra payment of £100 making a total of £600 (£500 plus £100). These payments will not affect any benefit due under the pension scheme. The new scheme applied automatically to stewardesses recruited after September 1. Girls already serving as stewardesses may take part in the new scheme, under which their past years of service will count towards the assessment of gratuity, if they elect to do so within 12 months. B.E.A., which employs 270 stewardesses, finds that the leaving rate of stewardesses for marriage and other reasons is so high that their average length of service is only 2½ years. It follows that recruiting and training costs are high and it is hoped that the gratuity will encourage them to remain for at least five years.

Loan for Katunayake

The United States Development Loan Fund has approved a loan of \$3,200,000 to the Government of Ceylon to help finance the construction of a new international airport at Katunayake, about 23 miles north of Colombo. The United States Operations Mission in Ceylon has already agreed to grant a loan of Rs 5,230,000 towards the project. The essential terms of the loan are 3½ per cent repayable within 20 years in rupees, with equipment and services financed by the loan to be purchased in the United States. The new international airport project at Katunayake was first mooted in 1958. With technical assistance from the U.S.O.M., aeronautical feasibility reports and site studies were made in likely locations at Katukurunde and at the existing airports at Katunayake and Ratmalana. These reports and studies indicated that the most economical location was at Katunayake where the Royal Ceylon Air Force already had an active military airport. The Government, therefore, decided upon the development of the Katunayake site on a joint-user basis with the Royal Ceylon Air Force as the other user. Civil aviation facilities including a new terminal building were to be located on the south side of the existing runway which was to be suitably strengthened and lengthened to 8,700 ft. while the Royal Ceylon Air Force facilities were to remain as at present on the north side.

CHAIRMAN OF B.O.A.C.



Rear-Admiral Sir MATTHEW SLATTERY,
C.B., D.Sc., F.R.Ae.S., R.N. (Retd.)

Appointed full-time chairman of the British Overseas Airways Corporation, although his predecessor, Sir Gerard d'Erlanger, had held the post on a part-time basis, Rear-Admiral Sir Matthew Slaterry, who took over on July 29, had been managing director of Short Brothers and Harland, Limited, since 1948 and, in addition, chairman of the company since 1952. He had thus, after more than 30 years in the Royal Navy, turned with success to industry. Born in 1902 and educated at Stonyhurst College and the Royal Naval Colleges at Osborne and Dartmouth, he joined the Navy in 1916. In the later years of his service he was concerned particularly with the naval air arm being Director of Air Material at the Admiralty, 1939-41, Director-General of Naval Aircraft Development and Production, Ministry of Aircraft Production, 1941-43, and chief naval representative from 1943. Then from 1945 until his retirement in 1948 he was Vice-Controller (Air) and Chief of Naval Air Equipment at the Admiralty and chief naval representative in the Supply Council, Ministry of Supply. When he joined Short Brothers and Harland the works, which had produced Sunderland and Solent flying-boats and Stirling bombers, were in grave danger of under-employment with a labour force of some 2,000. Energetic expansion of activities brought in a substantial amount of sub-contracting work, including the manufacture of Bristol Britannias as well as the construction and testing of the SC1 vertical take-off aircraft and the production of the Britannic transport aircraft for the Royal Air Force; the number of workers was more than quadrupled. Developments have not, moreover, been confined solely to actual aircraft and, apart from the production of aircraft seats, the precision engineering department designed an electronic analogue computer capable of handling the very diverse applications of electronics and kindred subjects in modern aircraft. In 1957 Sir Matthew was appointed special adviser to the Prime Minister on the transport of Middle East oil. Until the recent grouping of the British aircraft industry he was chairman of Bristol Aircraft, Limited, and he remained until lately a director of the Bristol Aeroplane Co., Limited. He was knighted in the New Year Honours of 1955 and had received the C.B. in 1946, the year in which he was elected a fellow of the Royal Aeronautical Society.

LETTERS TO THE EDITOR

Bus Exit Design

UNEXPECTED BOUQUET

SIR,—Your illustration of a 108-passenger double-deck bus, now being used experimentally in Vienna, prompts me to say that I feel the single-width front exit is inadequate for city service and that such is likely to be a failure in consequence.

In 1927 I produced designs for double-deck trams and buses incorporating double rear and double front exits, and these were published in transport journals at the time. I contended that without a double-width exit, separate exits could not guarantee a reduced aggregate passenger interchange time over conventional vehicles (with double combined entrance and exit) in so far as single front exits entail greater delay at stops where nearly every interchanging passenger alights.

Front exits have never caught on in this country, probably due to the greater difficulty for conductors to catch all fares and to check over-riding. But the Germans seem to be able to run front-exit trams with a similar fare system without worrying about this whilst using seated conductors.

Our British double-deckers provide much more comfortable rush-hour travelling, but the passenger interchange facilities are primitive. I have seen three-car tram sets in Cologne loading or discharging 12 streams of passengers. I cannot see the Vienna public enjoying squeezing out of a single exit from a 108-passenger bus. This is not necessary.

I greatly admired the quiet, steady riding of the German trams, both old and new, and the excellent passenger interchange facilities with seated conductor on the latter. But my enthusiasm diminished when I contemplated the conditions of rush-hour travel—so similar to those on our London Underground then.

Menaced by the motor-car, motor bicycle and moped, Continental engineers—whether operating trams or buses—might do well to try and combine the comfort of the British double-decker with the admirable interchange facilities provided by their modern trams. The Vienna bus does not do this.

—Yours faithfully,
HENRY WATSON,
317 Lady Margaret Road,
Southall, Middlesex.

Tramway Centenary Commemorated

SIR,—We have read with great interest your leading article on the British Tramway Centenary in your issue of August 20, and are particularly pleased that the occasion was given editorial notice.

We should like to draw your attention to the fact that the August issue of *The Modern Tramway* is devoted to special features to mark the centenary. The issue includes articles on the rise and fall of British tramways, the Birkenhead tramway of 1860, the tramcar of the 1860s, and trams in the social scene. The illustrations in this 32-page issue include a special series of famous tramway scenes. Copies are available from the address below, price 1s. 9d. each, post free.—Yours faithfully,

J. JOYCE,
Hon. Editor,
The Modern Tramway,
245 Cricklewood Broadway,
London, N.W.2.

Unexpected Bouquet

SIR,—I have no doubt that the railways fail to sell themselves to the disenchanted public as you suggest (*MODERN TRANSPORT*, August 20). I am anxious to pay tribute to just one unrecognised railwayman, Conductor Metcalfe of the Western Region Catering Services. The official reason for the forthcoming withdrawal of his train, the 6 p.m. Paddington—Weymouth, is shortage of key staff, according to an official notice in the Newbury local paper. He has been on this train for 35 years or so, except for the war, and his pride in the job seems to infect all the Western Region catering staff at Weymouth who work it with him. Having been on this train regularly for rather more than 20 years, I am glad of the opportunity publicly to say this.

Of course the existence of a rival and shorter route, compulsory for Channel Islands passengers since 1959 when their carriages were withdrawn from the train, and now virtually the only route to London for all Weymouth passengers has had something to do with this. In fairness to British Railways, however, a change of attitude towards what the public wants and what B.R. policy wishes to provide seems also to have occurred. As an example of this, passengers may now be taken on their cargo ships *Elk* and *Moose* overnight to Southampton from the Channel Islands, and this change of policy has been accomplished without any satirical publicity, which the previous policy of providing accommodation for cattle drovers only, could have provoked. A few years ago, or even months ago, a suggestion that persons would like to use the ships without having to take a cow along for company, would have been resented as frivolous, but taken seriously, and humbly explained away with that patience, modesty and tact found in railwaymen everywhere, but seldom properly acclaimed.—Yours faithfully,

GEORGE BEHREND.
The White House
Rozel Harbour,
Jersey, C.I.

FORTHCOMING EVENTS

- Until September 7.—Central Line Diamond Jubilee Exhibition. Charing Cross Underground Station.
- September 3.—R.C.T.S. (South of England) Meeting. Slides. Junction Hotel, Eastleigh. 6.30 p.m.
- 1.R.T.L. Films and slides taken of recent league tours of Swiss and German tramways. Keen House, Calshot Street, N.1. 2.30 p.m.
- L.R.T.L. Visit to Metropolitan-Cammell Carriage and Wagon Co., Limited, at Washwood Heath and Salford to see new Blackpool tramcars under construction. Meet 8.50 a.m.
- September 5-11.—Society of British Aircraft Constructors. Annual flying display and exhibition. (Public days September 9-11.)
- September 8.—L.R.T.L. F. E. Oldfield, "The Last Years of Liverpool Trams." Y.M.C.A., Mount Pleasant, Liverpool. 7 p.m.
- September 9.—L.R.T.L. C. W. Routh, "Leeds Routes at the End of the War." St. Clements Church, Chapeltown Road, Leeds. 7 p.m.
- September 11.—H.C.V.C. Fifth annual old lorry rally. Cranes Close, Basildon. 2.30 p.m.
- September 12-14.—Municipal Passenger Transport Association. Conference at Douglas, I.O.M.
- September 13.—R.C.T.S. (East Midlands) Meeting and film show. Thurland Hall, Nottingham. 7.30 p.m.
- September 14.—L.R.T.L. R. Copson, "Postwar Hamburg." 153 Drummer Street, N.W.1. 7 p.m.
- September 23-October 1.—Commercial Motor Show, Earls Court.

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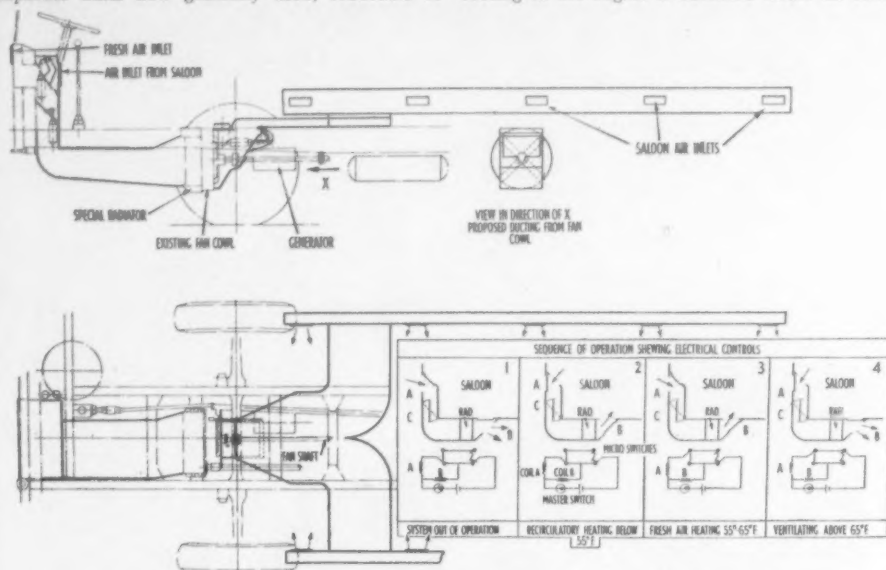
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COACH HEATING AND VENTILATING

New System Proposed by Clayton Dewandre

AMONG advantages sought in a new system of heating and ventilation for motor coaches proposed by the Clayton Dewandre Co., Limited, are elimination of the number of separate units now generally used, reduction of

The basis of the scheme is the use of the air which has passed through the vehicle radiator, and has, therefore, been heated, to warm the passenger compartment. An essential feature is that adequate cooling of the engine is obtained under all condi-



New system proposed by Clayton Dewandre, drawn to suit Leyland Tiger Cub

electrical load, full engine cooling under all conditions, quick engine and saloon warm-up and supply of fresh cool or warmed air to the saloon. The proposed system is illustrated diagrammatically in the accompanying drawing and described in the text.

tions. A further feature is the prevention of the ingress of unheated air into the coach in cold weather; another is the provision of ventilation without the need to open windows.

Assume cold weather conditions, with the vehicle

starting from cold. Both the saloon thermostats (micro-switches 1 and 2) will be in their cold positions; coils A and B will both be energised, thus admitting air to the cylinders actuating flaps A and B, so that they will be in the positions shown in figure 2. Until the engine water temperature has reached a predetermined figure, say, 160 deg. F., flap C will be closed, thus preventing any movement of air by the engine radiator fan. This means that the engine water temperature will rapidly rise to its optimum. When the predetermined water temperature has been reached, the thermostat in the engine water circuit will cut off the supply of compressed air to cylinder C, which will, under the action of a return spring incorporated in it, open flap C and permit air to pass through the radiator.

The air will be drawn from the saloon through flap A and having been heated in its passage through the radiator will be discharged back into the saloon through flap B and distribution ducting running the length of the saloon on each side. Recirculation of the air in this manner gives a rapid rise in the saloon temperature, to a figure (say 55 deg. F.) predetermined by the setting of micro-switch 1. At this temperature, micro-switch 1 will be moved over to its other position by its associated thermostat, thus de-energising coil A in an electro-pneumatic solenoid valve, which will exhaust air to atmosphere from cylinder A, causing flap A to close off the intake from the saloon and admit outside air to the radiator. Thus heated fresh air will be discharged into the saloon through flap B (see fig. 3).

As the saloon temperature rises to a second preset value, say, 65 deg. F., micro-switch 2 will also operate, causing flap B to close off air to the saloon and discharge it to atmosphere beneath the vehicle body. At the same time, coil A is energised, thus causing flap A once more to connect the system with the interior of the saloon (see fig. 4). Under these conditions, cool fresh air is drawn into the saloon through apertures in the roof of the vehicle, thus ventilating the saloon.

Due to normal heat losses to atmosphere, the saloon temperature is not likely to exceed 65 deg. F. or thereabouts unless the atmospheric temperature is well above freezing, so that conditions of alternating hot and very cold air entering the saloon should not occur. In summer, when the ambient temperature is above 65 deg. conditions as fig. 4 will be permanently obtained so that full ventilation of the saloon always occurs.

Safeguards

Should a failure occur in the electrical supply, the circuit is so wired that conditions as fig. 1 apply, whereby no air is drawn or discharged into the saloon, but full engine cooling is obtained. Thus it will be seen that the requirement of adequate engine cooling is always met, since, when the electrical supply is functioning correctly, there is always an ample flow of air through the radiator whenever the engine water temperature reaches its predetermined value.

Failure of the electrical supply does not affect the actuation of flap C, which is controlled by direct pneumatic operation of the thermostat in the engine water circuit.

The proposed system has much to recommend it compared with the current widely used method of employing a number of small heat exchangers with electrically driven fans positioned throughout the saloon. Disadvantages of high electrical load, maintenance of a number of small electrical motors and the common use of recirculated air for saloon heating appear to be overcome in the Clayton Dewandre proposal without adding unduly costly equipment or radical changes in coachwork design.

BEDFORD LIGHT PICKUP

Versatile Newcomer

BECAUSE of the rather muddled legislative rulings that decree a 30-m.p.h. speed limit for the dual-purpose vehicle known as a pickup truck (unless it has four-wheel drive and weighs under 2 tons unladen), this very useful type of vehicle is far less popular in this country than it deserves to be and in fact is in many other countries. Few British manufacturers consider it worth while to include a pickup in their standard ranges of vehicles and this leaves a gap in export catalogues. Now Vauxhall Motors, Limited, has seen fit to rectify the omission in the Bedford range by the introduction of a pickup designed for a gross weight of 4,600 lb. (about 2 tons).

The new vehicle is based on running units developed for the new Vauxhall Velox and Cresta cars, including the new 2.6-litre six-cylinder petrol engine and three-speed all-synchromesh gearbox with steering-column change. The engine is housed under the bonnet of a current normal-control Bedford cab providing excellent all-round visibility



New Bedford pickup providing comfortable travel for three and half-ton load capacity

and the comfort of Velox three-passenger seating. Running gear includes 15 in. dia. wheels to give a low loading line and long semi-elliptic springs with telescopic hydraulic dampers all round.

The load-carrying space in the welded-steel body measures about 6 ft. 6 in. long and 5 ft. 6 in. wide inside and the sides and tailboard are 1 ft. 8 in. high. Payload capacity is 10 cwt. Overall dimensions are 15 ft. 2 in. long, 6 ft. 2 in. wide and 6 ft. 6 in. high to top of cab. Ground clearance under the back axle is 8 in. Provision is made in the cab for a heater—demister and other optional extras available include flashing indicators and rear bumper. United Kingdom prices are chassis-cowl £475, chassis-cab £557 and pickup £627.

As well as the lively overseas demand that can be anticipated for the new Bedford, it should also attract reasonable home sales, despite the speed limit (except on motorways), for its dual-purpose characteristics of comfortable private travel and useful load capacity. It should be of interest to farmers, smallholders, builders and the like.

ROUGH BRAKE WAGON : FISH VANS : PALBRICIC WAGONS : 25 TON WELTRO
TON BOGIE BOLSTER WAGONS : PARCEL VANS : BULK MATERIAL WAGONS
N TRESTLE WAGONS : BOILER WAGONS : 40 TON PROTROL BOGIE WAG
TON BOGIE BOLSTER WAGON : 21 TON LOWMAC WAGONS : 20 TON WHE
DOGFISH WAGONS : 24 TON MINERAL WAGONS : 40 TON WELTROL WAG

WAGONS :
TON FLAT W.
VANS : 40 TO
ON FLAT E.Q.
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N LOWMAC
TON MINERA
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TON BOGIE E
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ON FLAT E.Q

AKE VAN : CO
HOPPER WAGONS : MINERAL WAG
GONS : PALBRICIC WAGONS : 25
RCEL VANS : BULK MATERIAL
LE WAGONS : BOILER W
N LOWMAC WAGONS : WHE
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T WAGONS : 40 TON FLA
LORINE TANK WAGONS
HOPPER WAGONS : 25 TON IRON ORE WAG
OUGH BRAKE WAGON : FISH VANS : PALBRICIC WAGONS : 25 TON WELTRO
TON BOGIE BOLSTER WAGONS : PARCEL VANS : BULK MATERIAL WAGONS
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PRESENT STATE OF RAILWAY ELECTRIFICATION

2—Historical Development*

By F. J. G. HAUT, B.Sc.(Eng.), A.M.I.Mech.E.

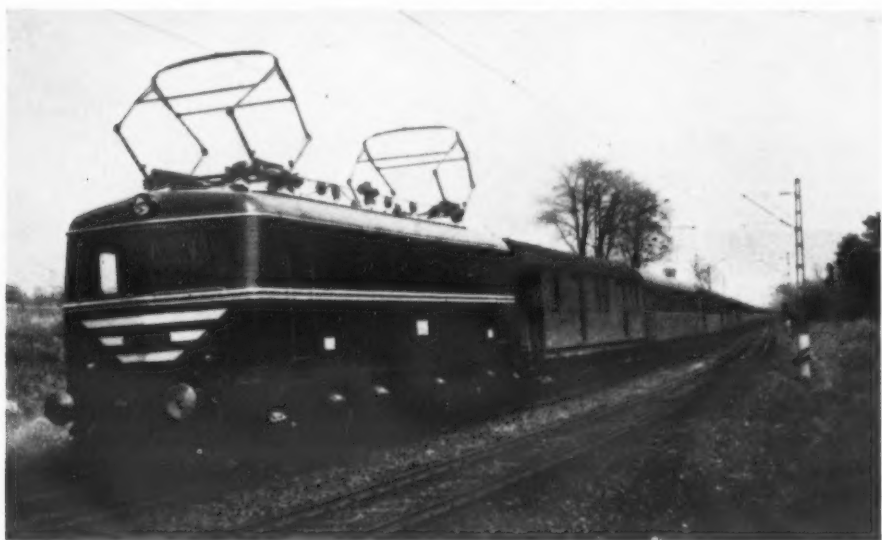
WITHOUT giving details of the early inventors and experimenters such as Davidson of Glasgow, Siemens of Berlin, the American inventors Depoele, Sprague, Edison and Field, the first main-line work was the electrification of a seven-mile long line of the Baltimore and Ohio Railroad in 1895. The current used was 675 volts d.c. and was taken from a rigid overhead line; the locomotives used were of the 0-8-0 wheel arrangement and weighed 96 tons. The City and South London Railway was in 1890 the first electric underground railway in the world. The initial section ran from King William Street to Stockwell and had 100-h.p. locomotives which were able to haul 40-ton trains over a ruling gradient (for downhill running) of 1 in 14. The current used was 500 volt d.c. supplied from a conductor rail.

Further developments came in Europe with the first three-phase a.c. locomotives on a small line in Switzerland, the Burgdorf—Thun Railway, which was electrified in 1899 with 750-volt three-

a 304-ton train on the maximum gradient of 1 in 37 at 26 m.p.h. Some of these locomotives are still in use, and one of the first is preserved in its original state in Lucerne.

British Events

Returning to Great Britain, two main-line companies became interested in 600-volt suburban passenger electrification at the beginning of this century and the Lancashire and Yorkshire and the North Eastern companies opened lines in 1904, the latter including some freight operation with overhead wires and locomotives for motive power. The first of the railway companies serving the populated areas south of London which electrified some of its lines was the London, Brighton and South Coast Railway. The first line to be converted was from Peckham Rye to Battersea Park, later extended to London Bridge and Victoria. A well-known railway engineer, Sir Philip Dawson, was in charge of the work, and the whole electrification scheme was opened in 1909. The current used was high-



Hungarian Bo-Co locomotive for 20,000-volt 50-cycle single-phase a.c. traction

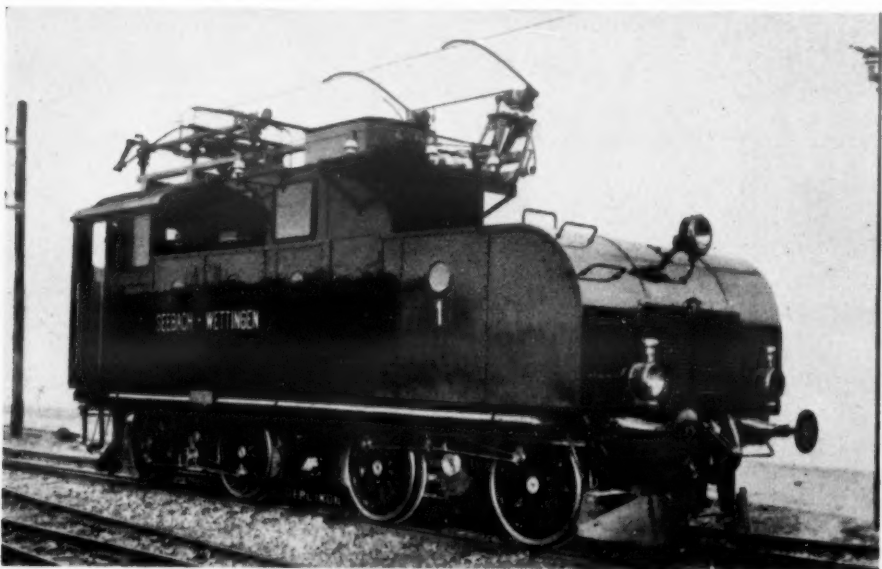
phase alternating current. It had motor coaches for passenger services and 0-4-0 locomotives for goods services; the latter had a 300-h.p. output. The line was used as originally built until 1933 when it was converted to standard Swiss current supply. One of the locomotives is preserved in the Railway Museum in Lucerne.

Setting a Pattern

A major three-phase a.c. electrification followed, that of the Simplon line (including the long tunnel) with 15-cycle 3,000-volt three-phase a.c. This is an important main line and the locomotives weighed up to 65 tons and gave up to 1,000 h.p. output. One of the next steps was the first single-phase a.c. line between Seebach and Wettingen in Switzerland which set the pattern for the next 40 years of electrification work in Northern and Central Europe. The 14-mile long line was completed in 1914 with three locomotives through the

tension, single-phase a.c. of 6,600 volts with overhead catenary lines. The overhead line was hung from catenary spans carried by portal structures spanning the rails. Some of these rather odd-looking designs can still be seen as signal bridges, for example near Clapham Junction.

The South London trains consisted of open compartment stock with side gangways, but there were no connections between the coaches. Each train set consisted at first of one motor coach, two trailers and a control trailer. They had four 150-h.p. motors per motor coach, each being supplied at 600 volts through the motor coach from the 6,600 volts line. Current collection was by twin overhead bow collectors. The electrification proved satisfactory and in 1911 the scheme was extended with compartment stock sets from Battersea Park Junction via Clapham Junction, Balham, Streatham Hill and Crystal Palace to Selhurst. Extensions to Croydon, Purley and Coulsdon and



The first single-phase a.c. railway in the world was the Seebach-Wettingen and this 0-4-4-0 is now preserved in the Transport Museum at Lucerne

enterprise of the firm of Oerlikon. The first locomotive was a converter locomotive, turning the 15-cycle single-phase a.c. of 15,000-volt line pressure to d.c. at 700 volts. Safe commutation was the main problem encountered. The locomotive was soon rebuilt as an ordinary single-phase locomotive with two 250-h.p. motors; it weighed 42 tons.

Although the experiment was later abandoned, it formed the basis for one of the milestones of railway electric traction, namely the Loetschberg Railway, opened as an electrified line. This line provides a very important link in the European network connecting Paris to Central Switzerland and Italy. Although only 48 miles long, it was one of the most difficult to build as the great obstacles in its path include the crossing of the Alps with some very daring bridges and a nine-mile long tunnel. The gradients are very heavy, up to 1 in 37. Electrification work was started in 1908 and completed in 1914. The locomotives used were firstly of the 0-6-6-0 design and later of the 2-10-2 wheel arrangement. The locomotives developed 2,500 h.p. continuous output and a tractive force of 39,600 lb. Their maximum speed was 46.6 m.p.h. The engines weighed 90 tons and could haul

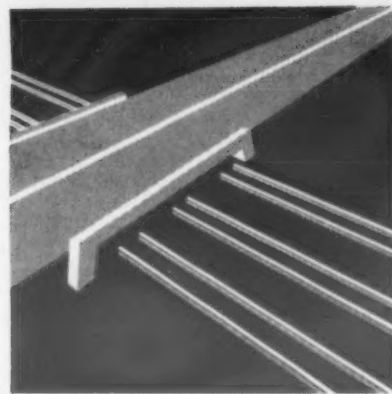
to Cheam were in hand in 1914 but did not materialise (and then not completely) until 1925.

Metropolitan Locomotives

The Metropolitan Railway had 20 electric locomotives supplied in two lots of 10. The first 10 were supplied in 1904 and the second batch in 1906, with different electrical equipment. The first type had a central cab, with extension pieces both ends, and the second had a box superstructure. All the locomotives were completely rebuilt in 1922 by Metropolitan-Vickers and it was then that they received their present appearance.

The locomotives have two two-axle bogies, each axle carrying a 300-h.p. motor. Wheel diameter is 43.5 in. and the total wheelbase is 29 ft. 6 in., with an overall length of 39 ft. 6 in. The locomotives are controlled by electromagnetic contactor gear; current is collected by four shoes. There is also means to connect shoes distributed through the train for spanning wide gaps in the conductor rail. The locomotives are laid out for multiple working in twos and threes being driven from the leading cab. Average train weight hauled is about 180 tons, and speeds up to 65 m.p.h. can be achieved. The locomotives weigh 56 tons in

(Continued on page 12)



TRAFFIC EXHIBITION

RAIL AND ROAD 1960

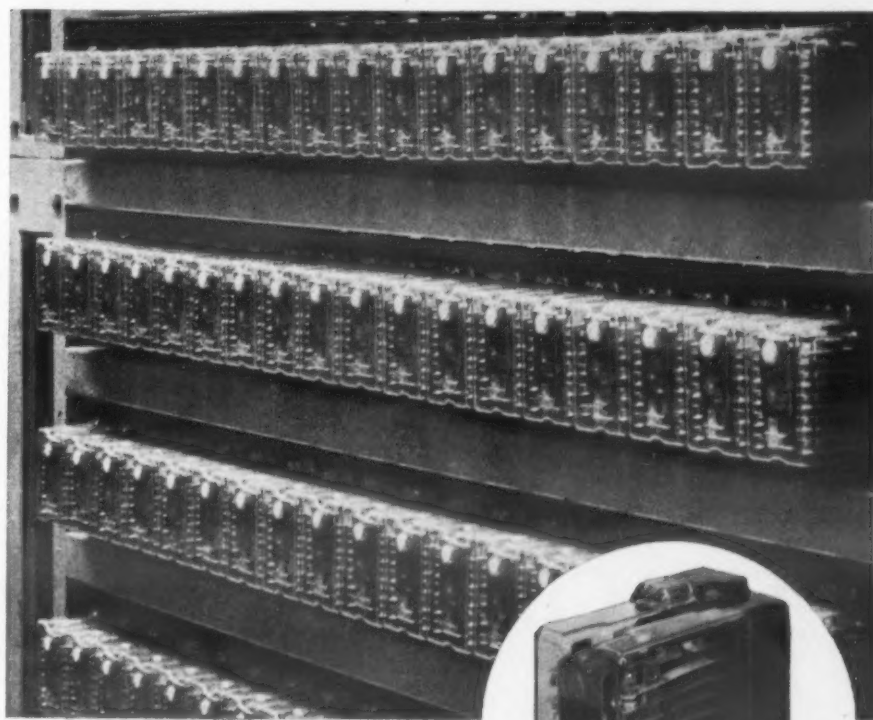
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Agents:—Bellamy & Lambie, Johannesburg

* No. 1 appeared on August 27.

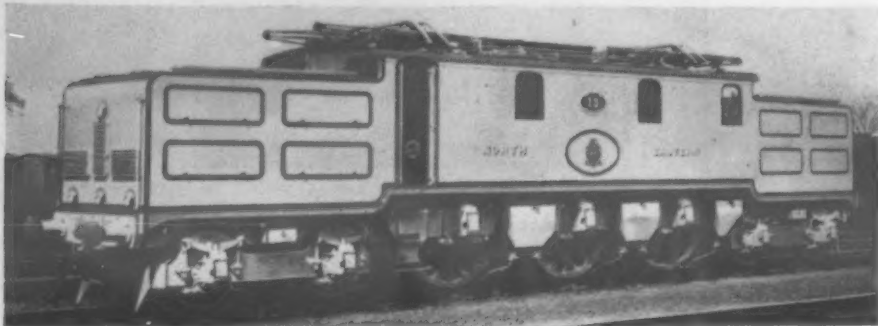
Electric Traction

(Continued from page 11)

working order. For many years until the outbreak of the 1939-45 war, these were the only main-line electric locomotives in the British Isles which were in full use.

In 1922, the chief mechanical engineer of the

individual axle drive, had two motors per driving axle; it weighed 102 tons and was 53 ft. 6 in. long. Its design requirements included 17 tons axle load and 16,000 lb. starting tractive effort; it had to start a train of 450 tons on 1 in 78 and to haul the



One of the 4-6-4 electric locomotives built by the North Eastern Railway



The first electric locomotive for the B.L.S. was built by Oerlikon and had an 0-6-6-0 wheel arrangement

North Eastern Railway built a high-speed 1,800 h.p. 4-6-4 electric locomotive intended for experimental work on the proposed 1,500-volt d.c. electrification from Newcastle to York, but it was only used on the Shildon-Newport mineral line, normally served by B-B units. The electrical equipment came from Metropolitan-Vickers, and the mechanical part was built at the company's shops at Darlington. The locomotive, which had

same train on level sections at 65 m.p.h. Maximum safe speed was 90 m.p.h. The locomotive fulfilled all these conditions but was never properly used and finally scrapped. This design with its high output, individual axle drive and general layout, was far ahead of its time; it came, however, too early to be of service.

Between the two world wars, substantial electrification schemes were carried out in Northern and Central Europe, Italy and the U.S.A., as well as in a number of Commonwealth countries, e.g. the Union of South Africa, and, of course, on the Southern Railway at home. All of these have been described in detail in the technical press.

(Continued at the foot of next column)

PORTUGUESE RAILWAYS IN 1959

Progress of Modernisation Plans

FIGURING prominently in the annual report of the Companhia dos Caminhos de Ferro Portugueses for the year 1959 is an outline of railway modernisation work projected under Portugal's second development plan. Detailed reference has already been made to many features of this work, which can be summarised broadly under the following headings:

- (1) Complete electrification of the northern main line between Entroncamento and Oporto.
- (2) Renewals and extensions in various civil engineering fields (permanent-way, station layouts, bridges, etc.).
- (3) Acquisition of up-to-date passenger and freight rolling-stock.
- (4) Substitution of diesel for steam traction on certain routes.
- (5) Adoption of modern techniques in signalling and telecommunications.
- (6) Improvement of river services between Lisbon and Barreiro.
- (7) Re-equipment of workshops, etc., installations.

Modernisation

So far as item (1) is concerned, the report men-

tioned that by the end of 1959 a contract had been placed with the local firm of Sociedades Reunidas de Fabricações Metálicas Lda. (SOREFAME), in conjunction with an international group of manufacturers, for the supply of the following material: 20 Bo-Bo electric locomotives; 21 three-coach multiple-unit electric trains; 14 first-class coaches and three restaurant-cars with full air-conditioning; and various auxiliary equipment therefor.

Regarding the fixed installations (catenaries, sub-stations, signalling and telecommunications) for this important undertaking, a number of firms had been consulted, and it was hoped before long to make an official pronouncement concerning the respective proposals submitted. Preliminary work on another essential feature inseparable from this scheme—i.e. the doubling of the line between Fátima and Albergaria and between Vila Nova de Gaia and General Torres (Oporto)—had made satisfactory progress. In the realm of rolling-stock in general, the building of 22 first-class coaches had also been entrusted to SOREFAME, whilst in the C.P.'s own workshops 15 narrow-gauge all-metal covered wagons of 20-tons capacity had been completed.

Diesel Traction

In respect of dieselisation, SOREFAME once again comes into the picture, an international consortium of which this firm forms a part having been

PORTUGUESE RAILWAYS IN 1959

		Percentage difference
Passengers conveyed	70,493,000	+8
Goods (tons) conveyed	13,782	-4
Goods (tons) conveyed	3,732,458	-
Passenger-km.	1,765,258,000	+5
Train-km.	17,673,000	+3
Passenger km. per train km.	99.9	+2
Goods-Gross ton-km.	2,129,309,000	+1
Net ton-km.	750,904,000	+2
Train-km.	5,479,000	-2
Average net ton-km. per train-km.	137.1	+4

Other data referring to year ended December 31, 1959

Extension of lines operated:	Broad gauge	Narrow gauge	Total
	2,807	764	3,571

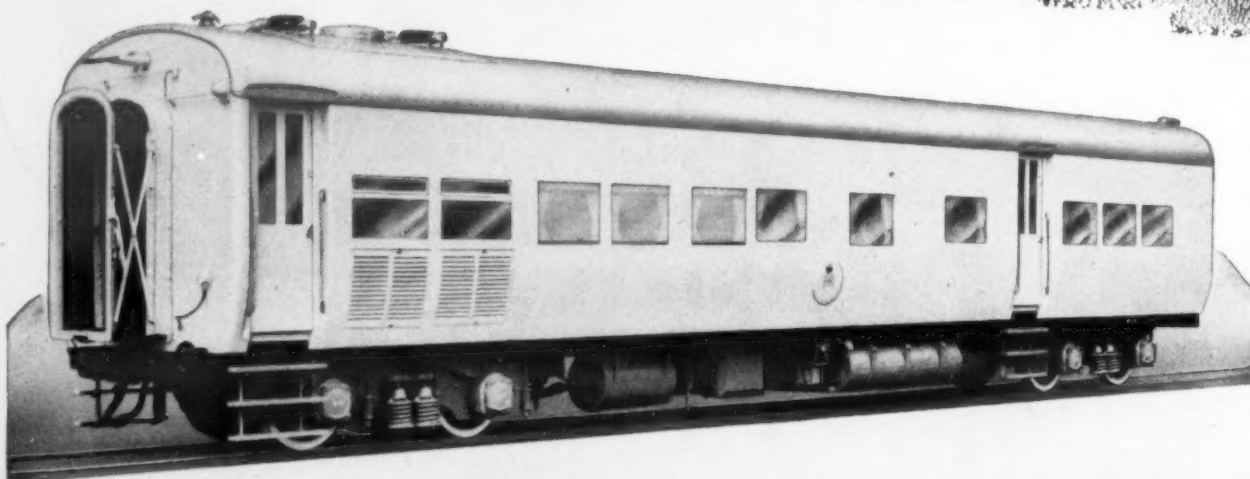
Traction-units and rolling-stock	Broad gauge	Narrow gauge
Steam locomotives	306	76
Diesel locomotives	65	—
Electric locomotives	15	—
Rail-cars and motored multiple-unit stock:		
Petrol	7	14
Diesel	52	13
Electric	25	—
Total of non-motored trailers (all uses)	6	8
Passenger-carrying vehicles:		
Open	20	7
Compartment	771	196
Brake vans	261	45
Freight vehicles	8,725	726

commissioned to supply six diesel-electric locomotives during 1959. Moreover, thanks to the financial arrangements with EUROFIMA, it had been possible to place orders with the consortium in question for nine similar locomotives.

For the installation of c.t.c. on the Setil-Vendas

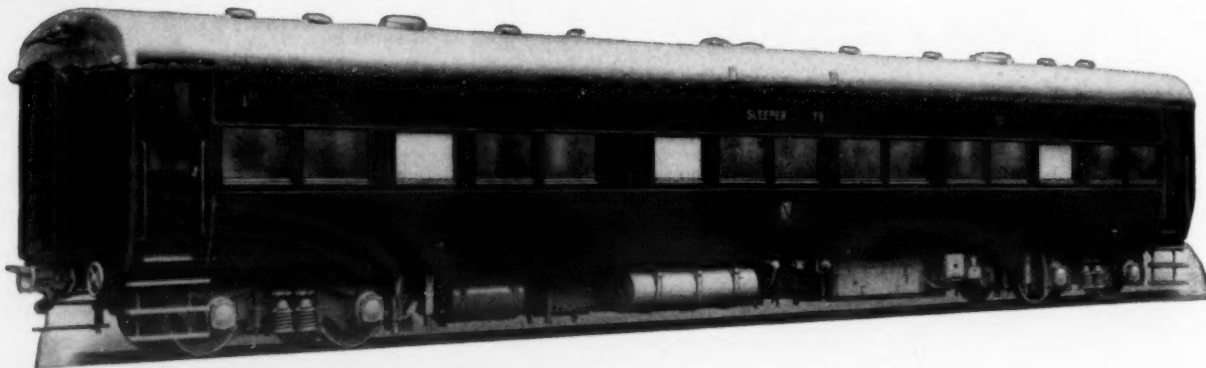
(Continued on page 16)

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FEATURES OF FARNBOROUGH

New Aircraft, Engines and Equipment

THE twenty-first flying display and exhibition organised by the Society of British Aircraft Constructors which opens at Farnborough on Monday for technicians' day, followed by three private days and public days on Friday, Saturday and Sunday will feature several aircraft or variants which have not appeared before in a display, the world's first public demonstration of vertical take-off and landing and conversion to fast forward flight by an aircraft fitted with jet-lift engines, and the latest British air liners. In the static aircraft park there will be the new Handley Page 115 research aircraft. The Avro 748 44-seat air liner which first flew in June will be making its Farnborough debut. Already ordered by four British civil operators, it is being built under licence in India as an Indian Air Force transport. A de Havilland Comet 4C will take part in the display for the first time. This is the intermediate-range version with the larger Comet 4 wing and long Comet 4B fuselage. So far, 51 Comets have been sold, 23 to operators abroad. The Lancashire Prospector Series 2 (with Bristol Siddeley Cheeta 10 engine)—suitable for crop-spraying and dusting, ambulance work, freighting and passenger carrying—will also be making its first Farnborough appearance. The latest version of the de Havilland Dove taking part in the display is intended primarily for the industrial and commercial executive market. This aircraft, the Dove Series 8, first flew in February last and, as the result of the increased power of its Gipsy Queen 70 Mark 3 engines, has a cruising speed in excess of 200 m.p.h. The Short SC1 represents a major technological advance. In April it became the first aircraft in the world fitted with a battery of jet-lift engines to convert from vertical to horizontal flight and back again and the first public demonstration of this process will be staged at Farnborough.

Second Appearances

Air liners taking part, in addition to the Avro 748, will include the Armstrong Whitworth Argosy, the big Vickers Vanguard (43 of which are on order for British European Airways and Trans Canada Air Lines), the Handley Page Herald and—rather smaller—the Scottish Aviation Twin Pioneer Mk. 3 which has Alvis Leonides engines of increased power. The first three named will be making their second appearances at an S.B.A.C. display. Westland helicopters taking part will comprise the widest range of turbine-powered rotating-wing aircraft in the world. Eight types will be represented: the Blackburn Turmo-powered Skeeter, two Wasps (with Blackburn Nimbus and de Havilland Gnome engines respectively), a Gnome-Whirlwind, civil Wessex (Napier Gazelle), Belvedere (two Gazelles), Westminster (two Napier Elands) and the Eland-powered Rotodyne. The Saunders-Roe Division of Westland will be exhibiting the SR-N1 Hovercraft which, since last year's display, has been fitted with a Blackburn Marboré jet engine for forward propulsion which gives the machine a maximum speed of some 60 m.p.h.

The static aircraft park will contain nine aircraft including, as already indicated, the interesting new Handley Page 115 slim-delta research aircraft which has been built to examine the low-speed characteristics of this configuration, and which could play an important part in a British supersonic air liner programme. Other exhibits will range in size from the R.A.F. Bristol Britannia 253, Napier's Avro Lincoln de-icing flying test bed and the Handley Page Herald, to a de Havilland Beaver and Heron.

Wide Range of Engines

British aero engines, which have earned more than £320 million in exports since the war, hold a unique place in world aviation. Nearly two-thirds of the turbine-powered air liners on order or delivered in the world outside the Soviet bloc have or will have British powerplants and there are more than 50 types of overseas aircraft fitted with aero engines supplied by Alvis, Blackburn, Bristol Siddeley, de Havilland, Napier and Rolls-Royce. Many of these engines and some new ones will be on view either fitted to aircraft taking part in the flying programme or in the exhibition building. Rolls-Royce Avons will power the Comet 4C, the Herald, Argosy and 748 will be Dart-powered while the SC1 and Vanguard will have RB.108s and Tynes respectively. The Rolls-Royce stand will contain an RB.108 which produces 8.1 lb. of thrust for every lb. of weight; the civil Avon, the latest version of which develops 12,200 lb. of thrust; the Conway by-pass turbojet, which will be on view podded complete with thrust reverser, noise suppressor and ready for installation in a Boeing 707; the turboprop Tyne, now developing 5,500 h.p.; the RB.141 second-generation by-pass turbojet, intended for the French Caravelle 8 with an initial rating of 15,000 lb.

Bristol Siddeley engines will power five military aircraft in the display and also the Lancashire Prospector. A particularly interesting exhibit on the stand will be the BE.53 lift-thrust ducted fan engine, on view for the first time. An unusual feature is the use of movable jet nozzles by which thrust can be directed downward, backwards or even forwards. This engine is intended primarily for vertical or short take-off aircraft. Other exhibits will include the Proteus.

Units for Helicopters

De Havilland Gyron Juniors will power the NA-39 in the flying programme, Gnomes the Wasp and Whirlwind, and Gipsy Queen 70s of 400 h.p. the Dove executive air liner. One of two Gyron Juniors on the stand will be the DGJ10, which is to power the supersonic Bristol T188 research aircraft and which is designed for operation at speeds in excess of Mach 2.5. There will also be two Gnomes, the H1000 which develops more than 1,000 h.p. for a weight of less than 300 lb. and the P1000 turboprop base on the H1000, and a Gipsy Major 215 of 220 h.p.

Napier Gazelles will power the Wessex and Belvedere, and Elands the Westminster and Rotodyne. An Eland 504, powerplant of the Con-vaire 540 and CL66, will be on the Napier stand as well as the Gazelle, which now produces 1,640 h.p., and a helicopter rocket booster which, fitted to a Whirlwind, produces an extra 90 h.p. A Blackburn Turmo-powered Skeeter and Nimbus-powered Wasp will be in the flying display. The Nimbus, on view on the Blackburn stand, has been selected to power the new SR-N2 Hovercraft and is available as a pure jet, shaft-drive or air-bleed engine.

The Turmo lightweight turbine engine powers two British and one American helicopter while the A.A.P.P. and Palouste air-bleed engines have been accepted widely at home and abroad. The Alvis Leonides-powered Twin Pioneer 3 will fly in the display and the Leonides 531 (640 h.p.), 554/1 (653 h.p.) and Leonides Major 755/1 (795 h.p.) will be on the Alvis stand.

More Exhibitors

The ever-growing importance of the actual exhibition is emphasised by the year-by-year increase in the number of stands and exhibits. This year there will be 382 compared with last year's record 376. Of these, 326 will be in the exhibition building, 40 in the outside equipment display, 13 in the missile park and three in the radar park. The area encompassed by the exhibition building will be the same as last year, 125,000 sq. ft. but the actual stand space will, by rearranging the internal layout, be rather greater than hitherto.

Because of industry mergers during the past year, the number of exhibiting companies will, on paper, be fewer than in 1959. For example, 19 companies will be grouped under three names—11 under Hawker Siddeley and four each under British Aircraft Corporation and Westland. The first two named will have stands of 7,500 sq. ft. and Westland 2,000 sq. ft. The total, 17,000 sq. ft. will be 7,000 sq. ft. more than the companies which comprise these groups had last year. The two main engine companies, Bristol Siddeley and Rolls-Royce will each have 2,000 sq. ft., the total of 4,000 sq. ft. being 1,000 sq. ft. more than in 1959. The radar park has had to be resited because of the extra space demanded by the missile park. The former will, as usual, contain items of particular interest. Decca, for example, will show data handling equipment for a military operations room and an air traffic control centre, and Cossor will display a system for air traffic control, meteorological radar and an automatic air-to-ground data link.

Cargo Handling

Among somewhat unusual items in the exhibition will be a baby's floating survival cot and an inflatable building on P. Frankenstein and Sons' stand. A number of new products will be shown by H. M. Hobson, among them an alternator drive, jacks to operate the droop leading edge on the de Havilland 121 wing and various fuel control systems. Goodyear Tyre and Rubber will exhibit a special tyre which should attract attention. It is designed so that inflation can be accomplished through the sidewall instead of through a conventional valve. An interesting exhibit on the Armstrong Whitworth section of the Hawker Siddeley stand will be the Rolamat system for cargo handling—a feature of the company's Argosy freighter.

Houchin and Murex Welding Processes will both be showing ground power units among other products. The former has recently received a contract for one type of ground starter worth almost £500,000. New ground equipment of another type which will appear for the first time is the Dennis Aero-loader, described in our issue of August 6. Models of existing and projected aircraft will be seen, including one of the Avro 771 project—a turbojet air liner with two Bristol Siddeley engines designed to carry 50-60 passengers "at high subsonic speed" on stage lengths of more than 550-600 miles and also a model of the Short SC7 small freighter to which reference is made on page 9.

VOLVO PRODUCTION

(Continued from page 7)

L495 chassis, designed for gross weights of about 13½ and 15 tons respectively on two axles; both are offered with lengthened chassis and trailing third axle in a balance-beam bogie, when gross weights permitted are 16½ and 18½ tons respectively. Chassis weights in standard two-axle form are roundly 4 tons 6 cwt. for the L485 and 5 tons 6 cwt. for the L495. Trailing axles and extended chassis add from 19 to 23 cwt. to the standard tare.

Principal differences in the two big chassis are in the power units and standard braking systems. The 485 is powered by the medium diesel engine producing 115 b.h.p. at 2,400 r.p.m. and 289 lb./ft. torque at 1,200 r.p.m., while the 495 has the D96B diesel giving 150 b.h.p. at 2,200 r.p.m. and 427 lb./ft. torque at 1,100 r.p.m. The alternative turbocharged diesel offered in the 495 develops 185 b.h.p. at 2,200 r.p.m. and 527 lb./ft. torque at 1,400 r.p.m., adding only 35 lb. to the weight of the engine. The blown engine is proving popular with operators; over 2,000 of them have already been delivered and about 50 per cent of current orders for 495 chassis specify the turbo-charged unit.

Both chassis employ five-speed synchromesh gearboxes, which can have overdrive top or a specially low ratio; the 495 has an Eaton two-speed axle as standard while a similar unit is offered as an alternative to a single-speed hypoid bevel on the 485. Vickers steering servos, exhaust brakes and front hydraulic suspension dampers are available optionally on both. Standard brakes on the heavier chassis are dual-circuit Bendix-Westinghouse air-pressure units and similar equipment is an optional extra on the 485, twin-circuit Hydrovac vacuum-hydraulic units being the standard fitment.

Examples of prices of Volvo vehicles in the Swedish home market obtaining in April this year were 19,265 kronor (£1,330) for the L420 and 36,630 kronor (£2,530) for the standard L485 goods chassis and about 49,000 kronor (£3,380) for the B655 underfloor passenger chassis. Full air brakes on the L485 chassis costs the equivalent of an additional £160 and the normal-control cab adds about £180. Additional cost of the Wilson-type gearbox over the standard five-speed unit in the B655 bus is 9,700 kronor (about £670).

The Goodyear Tyre and Rubber Co. (Gt. Britain), Limited, has opened new branch premises at 24 Broughton Street, Manchester, 8 (telephone Deansgate 7921), to replace its existing north western division headquarters at Chapel Street, Salford. The new premises comprises a single-storey building fronted by a two-storey office block with ample parking space at the rear and a loading dock capable of handling the largest vehicle.



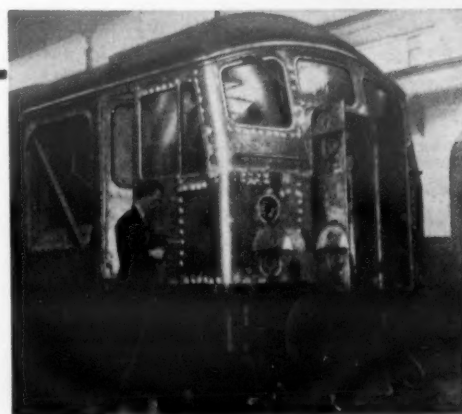
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CLASSIFIED ADVERTISEMENTS

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SITUATIONS VACANT

PROSPECTS for man under 25 interested in all aspects of transport operation to train as a Technical Journalist. Give particulars of age, education, and experience in transport. Apply to Secretary, Modern Transport Publishing Co., Limited, Russell Court, 3-16 Woburn Place, London, W.C.1.

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[Another Classified Advertisement appears on page 15]

EDUCATIONAL

THE City of London College will hold evening classes beginning on September 26 to prepare students for the Graduateship and Associateship examinations of the Institute of Transport. Courses are also provided in Shipping and Forwarding, and in Dutch, French, German, Italian, Portuguese, Russian and Spanish, and lunch-hour classes in French, German, Italian and Spanish. Enrolment for new students: September 29, 5-7.30 p.m. September 21, 5-7.0 p.m. Further details of the courses are available from the Secretary of the College, Moorgate, London, E.C.2.

AGENCIES

SALES REPRESENTATION IN THE NORTH-EAST

ESTABLISHED selling organisation, widely known in mining, shipbuilding and general engineering circles, with offices in Newcastle upon Tyne, wishes to extend its activities to take advantage of a top-level connection in the Transport and P.S.V. Industries. It is therefore prepared to represent one or two leading manufacturers offering products or services in these fields. Fully mobile staff ensure wide and thorough representation. Write Box No. 3843, MODERN TRANSPORT, 3-16 Woburn Place, London, W.C.1.

New Scammells

(Continued from page 5)

compression spring attached to the frame. The rubber unit is in constant contact and gives progressive resistance to compression.

Air supply for the suspension is taken from a reservoir on the semi-trailer common to the braking system, which is charged from the tractor engine-driven compressor. Brake operation is safeguarded by a valve in the system that prevents the suspension from taking further air if pressure in the system falls below 60 p.s.i. Each suspension bellows is fitted internally with a rubber limiting stop capable of supporting the full load over a limited distance should the bellows deflate. All bogie joints are rubber bushed and require no lubrication.

Brakes and Tyres

Brakes are provided on all five axles and Girling wedge-and-roller 15½-in. by 5-in. two-leading-shoe equipment is used all round. Actuation is air pressure-hydraulic on the tractor and direct air pressure on the trailer. The engine-driven compressor governed at 110 p.s.i. supplies air to two Airpak reservoirs on the tractor and the trailer reservoir. The brake pedal applies all ten brakes, being connected through a balance arm to two independent hydraulic master cylinders, output from one of which is taken through one Airpak servo to the tractor front- and intermediate-axle brakes and of the other through the second Airpak to the tractor rear-axle brakes and a valve in the service line controlling the four semi-trailer brakes. A hand-operated valve in the cab also operates the semi-trailer brakes independently, there is a hand-operated mechanical brake lever on the semi-trailer for independent parking and the normal brake lever in the cab is mechanically linked to the tractor bogie brakes.

All wheels are of the three-piece disc type, 20 in. by 6 in., taking 8.25-20 12-ply tyres, on the tractor front axle, and 20 in. by 7 in., taking 10.00-20 16-ply tyres, singles all round on both tractor and semi-trailer bogies.

The Handyman matched articulated lorry for 24 tons gross weight incorporates many of the components already well-proved in the established Scammell Highwayman bonneted range. The new 27-ft.-long platform trailer, incorporating rubber-in-compression or pneumatic independent bogie suspension, air-pressure braking and a variety of types of coupling, is available separately.

The two-axle tractor is powered by the Leyland O680 (11.1 litre) diesel engine set to produce 161 b.h.p. at 2,000 r.p.m., driving through a 16½-in. single dryplate hydraulically operated clutch, six-speed overdrive-top constant-mesh gearbox and double-reduction spiral bevel-epicyclic rear axle. Suspension is by four semi-elliptic springs and Woodhead Munro dampers all round. Direct air-pressure brakes have two reservoirs and two separate circuits, employing Girling 16-in. by 3-in. front tractor, Scammell 17-in. by 5-in. rear tractor and Girling 15½-in. by 5-in. trailer bogie shoe equipment. Tyres are 10.00-20 15-ply rating all round, twins on the tractor rear and trailer. The vehicle is fitted with the latest pattern of Scammell forward-control structural plastics cab designed in two units with plug-and-socket electrical connections—the base

and front wings supported on four rubber mountings and an easily detachable top section giving good accessibility when dismounted. The curved two-piece windscreen is of laminated glass, there is a fully adjustable driver's seat and provision for fresh-air heater-demister, radio, windscreen washers and so on.

The outfit is shown with Scammell heavy-duty automatic coupling gear with air-operated release (ease of operation of which will be demonstrated on the stand), though other types of coupling including the Scammell Spherub and S.M.M.T.-S.A.E. fifth wheel, can be fitted when required. The semi-trailer frame is of welded construction of pressed-steel channel sidemembers, 15 in. by 3½ in. by ⅜ in. at the main section, fitted with two channel- and three tubular-section crossmembers and outriggers along each side at 3-ft. intervals.

The four wheels are carried on independent trailing arms pivoted at their forward ends in rubber trunnion bushes, each arm bearing against a stack of rubber discs in compression that are said to be inherently self-damping and progressive in deflection rate. A balance beam at each side is pivoted at its centre on a frame crossmember, while the beam ends are coupled through short links to front and rear rubber springs, thus serving to distribute the load evenly between front and rear bogie wheels on each side and cancel out reactive forces during braking. Rubber or oilless fabric bearings are used throughout.

Routeman Rigid Eight-Wheeler

The Routeman is an entirely redesigned Scammell rigid eight-wheeler available in two wheelbase lengths and with a wide variety of alternative units to suit individual operating requirements. Power units can be Leyland O600 (125 b.h.p. at 1,800 r.p.m.), Leyland O680 (161 b.h.p. at 2,000 r.p.m.), Gardner 6LW (112 b.h.p. at 1,700 r.p.m.) or Gardner 6LX (150 b.h.p. at 1,700 r.p.m.). Leyland 16½-in. single dryplate clutch is fitted with Leyland engines and Borg and Beck 16-in. unit with Gardner engines, in both cases with hydraulic operation. A Scammell six-speed constant-mesh overdrive-top gearbox, with full-torque power takeoff, is offered in alternative wide-ratio (6.55 to 0.622 to 1) and close-ratio (5.70 to 0.713 to 1) forms and the standard single-drive double-reduction axle is available with six different overall ratios from 7.13 to 11.28 to 1. An alternative double-drive bogie, with a ratio of 7.25 to 1, employs Leyland 9 in. worm-drive axles.

Suspension of the two front axles is by four semi-elliptic springs and Marles cam-and-double-roller steering gear can be equipped with optional hydraulic servo. Four semi-elliptic springs, with a short balance beam on each side, are also used with the single-drive bogie, while the double-drive bogie has one inverted semi-elliptic spring pivoting centrally on a trunnion bearing on each side. Two-circuit air-pressure braking can be fitted to three or all four axles and there is a wide choice of tyre equipment and optional additional equipment, including automatic lubrication to 60 chassis points. The standard cab is the Scammell forward-control structural-plastics unit with quickly detachable top section and optional rear firescreen for tanker application.

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transport in all weathers. Combined with up-to-date shore handling equipment, these modern vessels help to maintain that regularity and reliability for which London Midland services are well-known. Full details and rates for London Midland's Heysham-Belfast facilities are available from your Goods Agent or Station Master, or contact Station & Quay Superintendent, Heysham Harbour, Lancs. (Heysham 73) or Shipping Traffic Superintendent, 20 Donegall Quay, Belfast (Belfast 28061) or Irish Traffic Officer, Euston Station, London NW1 (Euston 1234 Ext. 526)

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SOCIAL AND PERSONAL

Manchester-Crewe Electrification

THE Minister of Transport, Mr. Ernest Marples, has been invited officially to inaugurate electric train working between Crewe and Manchester on the London Midland Region on September 12. The ceremony will take place at Manchester London Road after the arrival of the special train from Crewe. The station will, thenceforth, be known as Manchester Piccadilly.

Messrs. L. B. Robinson and R. G. H. Linzee have retired from the board of the British Aluminium Co., Limited.

The engineering group of the General Electric Co., Limited, has reorganised its representation at the company's branches in Great Britain under five area chief engineers. This has been done in order that the four areas in England and Wales shall conform more closely to those of the Central Electricity Generating Board's generating divisions and area boards. The territories covered by the South of Scotland Electricity Board and the North of Scotland Hydro-electric Board will remain the responsibility of the Scottish area chief engineer.

As already announced, Mr. R. G. Howe, M.Inst.T., who has been appointed a director and general manager of the Lincolnshire Road Car Co., Limited, moves to Lincoln from similar appointments with the Southern Vectis Omnibus Co., Limited.



Mr. R. G. Howe

He began his career in passenger road transport in 1930 as accountant to Varsity Express Motors, Limited, a company which was shortly afterwards to be acquired by the Eastern Counties Omnibus Co., Limited. He was appointed traffic assistant and later assistant to the traffic manager of the Eastern Counties company in 1933, and in 1938 became traffic manager of the United Counties Omnibus Co., Limited. Ten years later, in 1948, he was appointed assistant general manager and traffic manager of that company. He transferred to Southern Vectis as director and general manager in 1957.

Mr. G. J. H. Jeffs, C.V.O., O.B.E., commandant at London Airport, is retiring from the public service on September 30. He will be succeeded by Mr. G. J. Warcup, who is at present Divisional Controller, Northern Division, Ministry of Aviation.

Councillor C. O. Worth, the new chairman of the Port of Bristol Authority, is a master mariner. He was subsequently assistant to the general manager of the Bristol Aeroplane Co., Limited, and, from 1949 to 1956, secretary of the Bristol Engineering Manufacturers Association. A bye-election in 1957 brought Mr. Worth to the City Council and in 1959 he became a Liveryman of the Honourable Company of Master Mariners and a Freeman of the City of London.

Mr. J. Hyde, air travel manager of Thos. Cook and Son, Limited, for the past eight years, is to become traffic manager (development), a new appointment. Mr. J. Watson, at present general manager for the East and Far East, will succeed Mr. Hyde as air travel manager. Mr. Hyde's appointment is necessitated by the growth of the company's business, and the need to have someone solely responsible for the future planning and development.

Mr. W. A. Whitson, O.B.E., has been appointed by the Secretary of State to be commissioner of an inquiry into the state of industrial relations in the East African Railways and Harbours, with particular reference to the nature and suitability of the machinery needed for sound industrial relations. Mr. Whitson was secretary of the committee of inquiry upon the railway wage structure that was set up recently in Britain under the chairmanship of Mr. C. W. Guillebaud, C.B.E., M.A., and was formerly a senior conciliation officer in the Ministry of Labour.

Mr. A. L. Crewe, M.B.E., assistant regional establishment and staff officer, Eastern Region, B.R., has retired after more than 49 years' railway service. He began his railway career in 1911 in the office of the chief goods manager, Great Central Railway. He took over control of the managing and salaried staff section of the L.N.E.R. chief general manager's office in 1932. On nationalisation, he was made general assistant to the chief regional officer, Eastern Region, and in 1952 became assistant regional establishment and staff officer.

Mr. C. H. D. Read has been made district traffic superintendent, Newport (Mon), Western Region, B.R. Mr. Read served his apprenticeship with the Great Western Railway at Swindon, but he joined the London Midland and Scottish Railway in 1932 as mechanical inspector. After holding various posts in the motive power department he was appointed district motive power superintendent, Colwick, Eastern Region, in 1948. He returned to the Western Region as district motive power superintendent, Newport, in 1950, and on the formation of the new traffic organisation, was appointed running and maintenance officer, Wales division, divisional traffic manager's office, Cardiff, in October, 1958, which post he now vacates on assuming his new appointment.

Mr. J. L. Paisley, M.B.E., M.Eng., M.I.C.E., has been appointed Divisional Road Engineer, North Western Division, Ministry of Transport, in succession to Mr. V. H. Haynes, A.M.I.C.E., who retired on August 31. Mr. Paisley studied engineering at Liverpool University and held appointments with an engineering company and with the West Sussex County Council before joining the engineering staff of the Ministry of Transport in 1937. He served on the staff of the Divisional Road Engineer, Scotland Division, until 1941 when he went into the Royal Engineers; he attained the rank of major and was appointed M.B.E. On his return to the Ministry in 1945 he served again in Scotland until his promotion to Senior Engineer and transfer to headquarters in 1952.

Mr. C. S. Thomas has resigned as president of Trans World Airlines.

Mr. W. R. Mills has joined Stanley Works (G.B.), Limited, the tool maker, as general sales manager.

Under a suggestions scheme run by the Morgan Crucible Co., Limited, Mr. J. H. Fairweather, a laboratory assistant in the research department, has been awarded £225.

Mr. A. Havard has resigned his appointment as public relations officer with the British Road Federation to become assistant editor of *The Commercial Motor*. His successor at the B.R.F. is Mr. G. Palmer.

The Southern Region Lecture and Debating Society will open its 1960-61 session on October 5 with an address by Brigadier C. A. Langley, Chief Inspecting Officer, Railway Inspectorate, "The History and Work of the Railway Inspectorate, Ministry of Transport." The president of the society, Mr. C. P. Hopkins, general manager of the Southern Region, will occupy the chair. The annual social and dance will be held at Battersea Town Hall on January 13, 1961.

With a view to expanding its tyre distribution interests, Kerry's (Great Britain), Limited, has formed a new company under the title Kerry's Tyre Services, Limited. Mr. M. S. Norton, who has for several years been a general manager of the parent company, has been appointed joint managing director in conjunction with Mr. W. N. Hart. In addition to his responsibilities as joint managing director of the new subsidiary, Mr. Norton will continue to be responsible for the parent company's tyre sales.



Mr. M. S. Norton

Mr. John Brancker has resigned his appointment as traffic director of the International Air Transport Association, which post he has held since 1953.

Mr. H. C. Steeples, A.M.I.C.E., has been appointed assistant civil engineer (modernisation), North Eastern Region, B.R. He entered the service of the London Midland and Scottish Railway in 1935 in the divisional engineer's office at Derby, and subsequently occupied posts in various civil engineers' offices in the London area. In 1951, after nationalisation, he moved to the North Eastern Region and was appointed assistant engineer (bridges) in 1952. In October, 1956, he was promoted to the position of assistant engineer (new works), the post he leaves to take up his new appointment.

The appointment is announced of Mr. G. C. Roberts as commercial director of Fairey Engineering, Limited. Mr. Roberts was, until recently, managing director of Britvic, Limited, and its subsidiary companies and a director of Vine Products, Limited. He retains his chairmanship of E. and H. P. Smith, Limited, general engineers, Birmingham. Fairey Engineering is one of the member companies of the Fairey group. In it are vested Fairey interests in nuclear engineering, guided weapons, target aircraft and aircraft and industrial hydraulics. It has its headquarters at Heston, Middlesex, and more than 500,000 sq. ft. of production capacity at its Stockport factory.



Mr. G. C. Roberts

The late Mr. W. F. Spurling, chairman of Spurling Motor Bodies, Limited, left £74,288 net.

Mr. G. C. Manly, L.R.I.B.A., and Mr. A. D. McGill, A.R.I.B.A., have been appointed principal executive assistants in the department of the architect to London Transport, each with the title of principal assistant architect.

Hitherto tours superintendent of London Coastal Coaches, Limited, Mr. W. Adams has been appointed to the tours department of Southdown Motor Services, Limited. His successor at Victoria Coach Station is Mr. C. Embleton.

Messrs. B. E. Walley, transport officer of the North Western Division of the National Coal Board; Brig. H. Miller, chairman of Preston Chamber of Commerce Transport Committee; W. Donoghue, North Western Trades Union Congress advisory committee; and J. Royston, divisional traffic manager, London Midland Region, B.R., are new members appointed to the North Western Area Transport Users Consultative Committee.

Seven members of the serving and past staff of the Western Region who have been elected mayor or sheriff for their respective cities or boroughs for 1960-61 were entertained at a luncheon on Wednesday by the general manager, Mr. J. R. Hammond. They were Messrs A. H. Kinchin, Mayor of Oxford, R. J. Pengelly, Mayor of Fowey, S. W. E. Salter, Mayor of Liskeard, A. J. Evans, Mayor of Llanelly, J. E. Jones, Mayor of Pwllheli, W. A. Cox, Sheriff of Exeter, and E. J. Powell, Sheriff of Carmarthen.

Mr. Alex Robertson, who this week retired from the post of deputy chairman of the Scottish Traffic Commissioners and Deputy Licensing Authority, was honoured by colleagues and by operators at a gathering in Aberdeen when Mr. W. Quin, chairman of the Traffic Commissioners and Licensing Authority, made him a presentation of a painting. The traffic area office and staffs in Aberdeen, where Mr. Robertson had his seat, made a separate presentation, also a painting, through Mr. A. M. J. Durrant, clerk to Mr. Robertson. Mr. Robertson, who is 76, has been a civil servant for 60 years and 19 years in office in Aberdeen.

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Application forms, which must be returned by 12th September, 1960, can be obtained from

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[Other Classified Advertisements appear on page 14]

IMPORTANT CONTRACTS

B.M.C. in Sweden

FORMATION in the near future of a subsidiary company to control from Stockholm and Malmö the importation, distribution, sales and service of the complete range of B.M.C. cars and commercial vehicles in Sweden, was announced this week by Sir Leonard Lord, chairman of the British Motor Corporation, Limited. The date on which this will be effective will be announced as soon as the necessary arrangements have been concluded with the present B.M.C. distributors, namely Ab. Hans Osterman, Stockholm, and Forenade Bil Ab., Malmö. Meanwhile continuity of sales and service for all current and earlier vehicles will be fully maintained throughout Sweden by these distributors, as well as the dealers who will continue to be actively associated with B.M.C. Sweden is one of the best markets in Europe for B.M.C., and the reorganisation is planned to take advantage of the new opportunities under European Free Trade Area agreements further to expand the sales of B.M.C. vehicles.

Indian Railway Communications

Marconi's Wireless Telegraph Company has received an order from Bharat Electronics, Bangalore, for a v.h.f. multi-channel communications system for South Eastern Railway, India.

Pye Company Telephone Contract

Airdrie Electronics, Limited, a Pye Group company, has been awarded a contract by the Government for special telephone apparatus valued at £250,000. It is believed to be the largest of its kind ever placed in Scotland.

Toronto Subway Signalling

Tenders are now invited by Toronto Transit Commission for installation of block signal and interlocking equipment on the Bloor-Danforth-University Subway, covering about 4,000 yd. of track. Documents are available from the Commission's construction branch at 1138 Bathurst Street, Toronto, and are returnable by October 17.

New London Midland Contracts

The London Midland Region of British Railways announces the following contracts:

Jesse Tildesley, Limited, Willenhall, for structural steelwork for new diesel servicing shed at Carlisle marshalling yard.
Tarmac Civil Engineering, Limited, Wolverhampton, for reconstruction of bridge and construction of footbridge and substructure for shops at Perry Bar Station, Birmingham.
E. C. Payer and Co., Ltd., Tipton, for aluminium structural frame, aluminium panel extrusions and aluminium flashings for prefabricated station buildings.
Thomas Fletcher and Co., Limited, Mansfield, for reconstruction of bridge on Trent Valley Line.

Vickers-Armstrongs Agreement with Racine

Vickers-Armstrongs (Engineers), Limited, and Racine Hydraulics and Machinery Inc., Racine, Wisconsin, U.S.A., announce an agreement whereby the two companies jointly develop their hydraulic interests and manufacture and sell each other's hydraulic products on a worldwide basis. Racine was founded in 1906 and is now a leading hydraulics manufacturer in North America, producing equipment incorporated in machine tools, presses, material handling equipment, winding machines, paper machinery and a wide range of other equipment.

Laminar Flow Aircraft Contract

Northrop Aircraft Corporation has been awarded a contract by the United States Air Force to build two research aircraft employing laminar flow, or boundary layer control. Various methods of boundary layer control—that is reducing air turbulence over the wing and other surfaces, which it has been estimated could increase aircraft overall performance by as much as 50 per cent—have been investigated in several countries over a period of years. In this country research has been carried out by Handley Page and more recently by the National Gas Turbine Establishment.

PORTUGUESE RAILWAYS

(Continued from page 12)

Novas line, a contract had been placed with Sociedade Ericsson de Portugal Lda., and the initial work was already well in hand. With a view to coping with the heavy trans-Tagus traffic, the shipyards at Viana do Castelo had received a contract for the building of two new ferry-boats, each able to carry more than 1,000 passengers; furthermore, early in 1960 the firm of Construtora Moderna Lda. was given an order for the construction and installation of two landing-stages at the Barreiro riverside station. Arrangements were also made in 1959 to acquire the land necessary for building up-to-date workshops at Entroncamento; this, together with a new foundry at Lavradio, constitutes an important feature of plant modernisation for handling the additional traction-units and vehicles envisaged in the development plan.

Financial and Operating Results

The financial results for 1959 may be deemed fairly encouraging, in that the gross receipts from all sources amounted, in round figures, to 781,488 contos, an increase of 20,815 contos in comparison with 1958. On the other hand, outgoings at 867,062 contos were 25,702 contos below the previous year's, so that the actual deficit was reduced by 46,517 contos. Some of the principal operating statistics, with percentage variations vis-a-vis 1958, are tabulated on page 12.

B.T.C. TRAFFIC RECEIPTS: PERIOD NO. 8—1960

	Four weeks to August 14, 1960			Aggregate for 32 weeks to August 9, 1959		
	1960	1959	+ or -	1960	1959	+ or -
PASSENGERS						
British Railways	17,001	16,174	+ 827	94,283	86,834	+ 7,449
London Transport	4,365	4,273	+ 92	34,749	33,300	+ 1,449
Road passenger services	1,978	1,778	+ 200	15,669	14,498	+ 1,171
Provincial and Scottish Buses ..	6,101	5,988	+ 113	37,927	37,135	+ 792
Ships	1,497	1,493	+ 4	4,676	4,549	+ 127
Total Passengers	30,942	29,706	+ 1,236	187,304	176,316	+ 10,988
FREIGHT, PARCELS AND MAILS						
British Railways	6,457	6,505	- 48	61,671	59,903	+ 1,768
*Merchandise and livestock	3,054	2,724	+ 330	29,746	26,457	+ 3,289
*Minerals	5,570	5,643	- 73	64,693	67,541	- 2,848
*Coal and coke	4,186	4,005	+ 181	33,901	32,599	+ 1,302
*Parcels, etc., by coaching train ..	19,267	18,877	+ 390	190,011	186,500	+ 3,511
Others	4,111	3,926	+ 185	34,627	33,185	+ 1,442
Total Freight, Parcels and Mails	23,378	22,803	+ 575	224,638	219,685	+ 4,953
Aggregate	54,320	52,509	+ 1,811	411,942	395,991	+ 15,951

*Includes receipts from collection and delivery, etc.

Comparisons are affected by variations in fares and charges which have taken place from time to time

SHIPPING and SHIPBUILDING

Coast Lines Prospects

CONSIDERABLE increases in all main items of costs are being faced during the present financial year and some increases in charges seem inevitable, says the annual report of Coast Lines, Limited, for 1959. It is nevertheless necessary to make full provision to cover traffic requirements with efficient and up-to-date equipment of all kinds and to this end two 1,500-ton cargo vessels of a new type are being added for the cross-Channel trades. In addition, there are plans for extending the group road haulage interests and for the modernisation of wharves. Last year the group net profit was £271,508 (£662,794 after tax). There is no final dividend but the two interim dividends, totalling 10 per cent, are the same as the distribution for 1958.

Memorable Cargo

WHEN a cargo of 9,400 tons of refined Jamaican sugar, consigned by Tate and Lyle, Limited, was discharged at New York recently for the U.S. market it was the first full cargo of British edible goods to be unloaded from a British ship in the United States since the Boston Tea Party of 1773.

Two More A.C.C.S. Sailings

SAILINGS on the Anglo-Continental Container Services route to Ireland have been increased from a scheduled 14 to 16 a week, divided equally between Preston-Larne and Ardrossan-Larne. A.C.C.S. has added radio-controlled road vehicles to its delivery fleet.

Ship-to-Shore Fuel Pipe

THE first commercial test of a floating hose, enabling fuel to be piped from ship to shore, is being tried out by Caltex, Incorporated, in the Philippines. Petrol, diesel oil and paraffin can be pumped from a tanker to storage tanks on land through a 500-ft. hose which will withstand severe battering and the corrosive action of salt water and chemicals, it is stated.

Only 105 Days Building

AN 18,100-ton ore carrier, the *Longstone*, launched last week by Austin and Pickersgill, Limited, at Sunderland, should be ready to go to sea 105 days after her keel was launched. This is regarded as one of the fastest pieces of shipbuilding ever achieved in Britain. The Sunderland yards have recently been modernised at a cost of £2 million. The builders attribute their latest feat to goodwill and co-operation by the workers and modern methods at the yard.

Whitstable Hopes

A BRIGHT future for Whitstable Harbour, now operated by the Whitstable Urban Council, was prophesied by Mr. E. C. D. Terry, the chairman of the Harbour Committee, at a council meeting on August 23. Trade, said Mr. Terry, had gone up 50 per cent in four months. At a time when many of the smaller harbours in the country were losing business, the quay at Whitstable had been filled with ships. Cargoes had come from Denmark and timber from the Scandinavian countries—and this was in addition to the normal coastal trade. There were bright hopes for the future, said Mr. Terry.

Medway Attractive

ON August 17 the Shipping and Coal Co., Limited, introduced a new ship, the 500-ton *Haskelland*, on to its Rochester-Rotterdam run. The smaller ship, *Birmingham*, has been running twice a week between the two ports for some time, but up to three months ago Shipping and Coal had not used the River Medway and the excellent facilities at the Phoenix Wharf, Strood, as an addition to the 10 other ports where it has branches. Mr. John Vaughan, manager of Shipping and Coal, said recently, "I predict that in not more than 12 months there will be four ships belonging to us sailing on this run." He thought that the Medway's future as a shipping area was very promising.

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Public Utility Transport Corporation

J. H. Plane (Africa), Limited, whose activities include the marketing of A.E.C. vehicles, has acquired a substantial interest in Public Utility Transport Corporation, Limited, which operates bus services in and around Johannesburg. The fleet of over 300 single-deckers is made up predominantly of Leyland and Guy chassis.

Hobbs Transmission

It is now revealed that it is the Westinghouse Brake and Signal Co., Limited, which has acquired a 50 per cent interest in Hobbs Transmission, Limited, Leamington Spa. It was announced in *MODERN TRANSPORT* of July 9 that B.S.A. was disposing of its controlling interest in this company, which is the designer of the Mecha-Matic transmissions. It has developed a range of fully automatic transmissions for engines of 900-cc. to 13-litre capacity for use in all types of cars and commercial vehicles. Arrangements have been made for these transmissions to be produced in the U.K. by the Westinghouse group.

Firth Cleveland Finance, Limited, has opened a second branch office in Scotland at 29 St. Vincent Place, Glasgow, C.1 (telephone Central 7895).

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